THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 35, No. 8 | 430 N. Michigan Ave., Chicago, Ill. | April, 1936

Fortieth Annual A.O.A. Convention and Exhibit

Enjoy convention trip up Hudson to West Point

Hotel Waldorf-Astoria New York July 20-24 1936

JUST OFF THE PRESS—BY 184 AUTHORITIES

Christopher's New Surgery

This is a *brand new book*—not a revision of any other work. It is *entirely new* from beginning to end and it meets fully these six requisites of a good book on Surgical Practice.

1—Authority. This new book was written by *184 leading authorities* of America and painstakingly edited by Dr. Frederick Christopher.

2—Brevity. Not curtailment—but brevity consistent with completeness. You can obtain the facts quickly.

3—Clarity and Orderly Presentation. A step-by-step presentation, from synonyms on through etiology, symptomatology, pathology, diagnosis, treatment, complications, after-care.

4—Illustrations. This new book contains *1349 illustrations on 730 figures.* Many of them are the work of Tom Jones.

5—Up-to-Dateness. The weight of authority behind this new book gives absolute assurance that the procedures have been accepted and proved time and time again.

6—Bibliography. Not a great mass of unorganized references but a carefully selected bibliography.

This new *monographic surgery* gives you in *one volume* the best surgical practice of America. It represents 41 medical schools in 28 different states.

Octavo of 1628 pages. By 184 distinguished contributors. Edited by FREDERICK CHRISTOPHER, M.D., F.A.C.S., Associate Professor of Surgery, Northwestern University. Cloth, $10.00 net.

W. B. SAUNDERS COMPANY **Philadelphia and London**

STRESS

— Emotional, Toxic, Infective — Must Involve the Endocrines

The close relation of metabolic activity, sympathetic balance, and endocrine function makes this claim inevitable. Hence asthenia, depletion, and cellular inadequacy are as obviously endocrine syndromes as Addisonism or myxedema. Two therapeutic procedures are imperative:

(1) **Spare the endocrines—**
control the cause, neutralize the toxins, rest the body.

(2) **Support the endocrines—**
especially the kinetic system (thyroid, adrenal cortex, brain, and muscles) with the original formula

ADRENO-SPERMIN

Available in sanitablets, capsules, and ampules.

The HARROWER LABORATORY, Inc.

GLENDALE, CALIF. 920 East Broadway | NEW YORK, N. Y. 9 Park Place | CHICAGO, ILL. 160 N. La Salle St. | DALLAS, TEX. 833 Allen Bldg. | PORTLAND, ORE. 316 Pittock Block

THE DENVER POLYCLINIC and POSTGRADUATE COLLEGE

Established 1914
Dr. C. C. Reid, President

Chartered by Colorado
Dr. H. M. Husted, Sec'y-Treas.

(Twenty-two years of successful graduate teaching)

August 3rd to 15th, 1936

ANNUAL GENERAL REVIEW and EFFICIENCY COURSE—THE ART OF PRACTICE

Over one thousand doctors have been helped by this intensive course

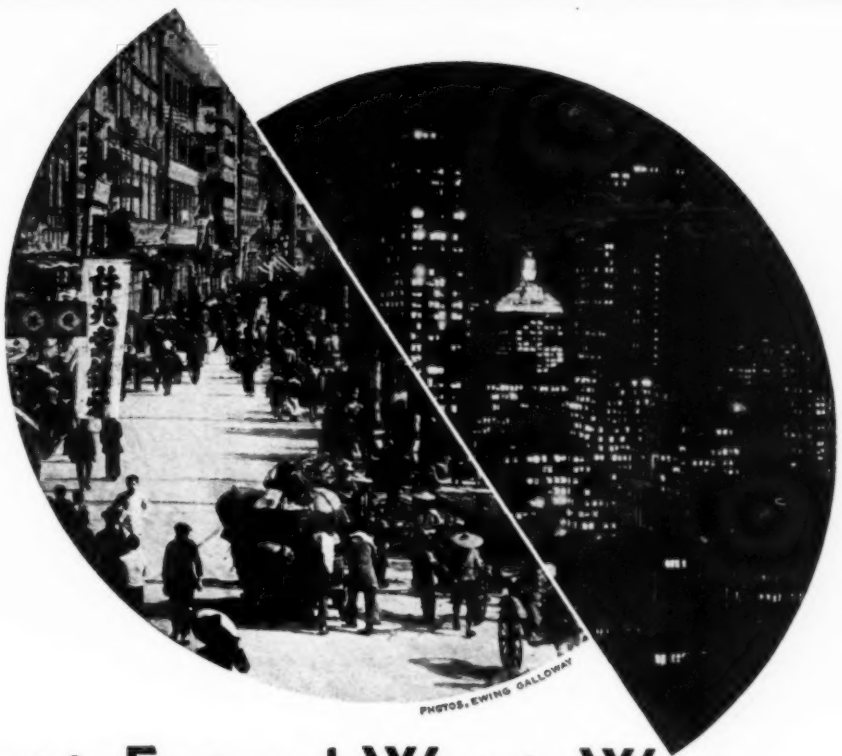
FACULTY AND SUBJECTS

Dr. C. C. Reid—Art of Practice, Eye, Ear, Nose and Throat.
Dr. H. M. Husted—Eye, Ear, Nose and Throat.
Dr. F. I. Furry—Orificial Surgery.
Dr. L. D. Anderson—Osteopathic Technic.
Dr. C. A. Tedrick—Dermatology, X-radiance, Blood Dyscrasias.
Dr. M. R. Howard—Exodontia.
Dr. L. Glenn Cody—Oral Hygiene.
Dr. W. M. Bleything—Endocrinology.
Dr. H. I. Magoun—Osteopathic Technic.
Dr. E. S. Merrill—Psychiatry.
Dr. W. Curtis Brigham—Surgery.
Dr. L. C. Chandler—Heart and Lungs.
Dr. R. R. Daniels—Food Therapy.
Dr. W. K. Foley—Varicose Veins-Hernia.
Dr. L. F. Reynolds—Obstetrics.
Dr. Phillip A. Witt—Urology.
Dr. D. V. Moore—Professional Psychology.
Dr. H. A. Fenner—Venereal Diseases.
Dr. Emma Adamson—Colonic Therapy.
Dr. J. M. Watson—Pediatrics.

SPECIALTY COURSES—August 17th to 29th, 1936

1. Eye, Ear, Nose and Throat—(Beginner's Course).
2. Eye, Ear, Nose and Throat—(Advanced Course), Dr. C. C. Reid, Dr. H. M. Husted, Dr. F. J. Cohen, Dr. H. E. Harris.
3. Orificial Surgery, Ambulant Proctology—Dr. F. I. Furry.
4. Varicose Veins and Hernia—Injection Method—Dr. W. K. Foley.
5. Major Surgical Technic—Dogs, Cadavers, Clinics—Dr. W. Curtis Brigham. Associates: Dr. B. L. Gleason, Dr. P. A. Witt, Dr. Harold A. Fenner, Dr. H. E. Donovan, Dr. I. D. Miller.
6. Practical Comprehensive Professional Service—Dr. D. V. Moore.
7. Secretarial Training—Office System, Collections, etc., August 3rd to 15th.

Address Dr. C. C. Reid or Dr. H. M. Husted—1550 Lincoln Street, Denver, Colorado



"East is East and West is West, and never the twain shall meet"

As impractical as a mixture of East and West is the custom of combining ovarian and testicular hormones in the same preparation. That is why Reed and Carnrick's reconstructive gonadal tonic, is made in two separate forms, to meet the strikingly different requirements of the sexes.

Tonicine's formula includes strychnin, glycerophosphates and testicle, or ovary. It has decided value as a general tonic in such conditions as asthenia, anorexia, convalescence, hypogonadism, and neurasthenia. Two teaspoonsful before meals is the usual dose.

TONICINE, male—
TONICINE, female
A Reconstructive Gonadal Tonic

REED & CARNRICK • Jersey City, N. J., U. S. A. • Toronto, Ont., Canada

Canadian Distributors: W. LLOYD WOOD, Ltd.
64 Gerrard Street, E., Toronto, Canada

British Distributors: COATES & COOPER, Ltd.
94 Clerkenwell Road, London, E.C.1.

CONTENTS, APRIL, 1936

ORIGINAL ARTICLES—
Kummell's Disease Under Osteopathic Management. Douglas R. McKissick, D.O., Chicago 363
Surgical Treatment of Ileus. Philip A. Witt, D.O., Denver 365
An Apparatus for the Application of Continuous Negative Pressure for Drainage of Body Cavities. Edward G. Drew, D.O., D.Sc., F.A.C.O.S., and Arthur M. Flack, A.B., D.O., Philadelphia 369
Roentgen Ray Diagnosis of Chronic Appendicitis and Its Relationship to Gastric and Duodenal Dysfunction. Charles J. Karibo, D.O., St. Joseph, Mo. 371
Production of Osteopathic Educational Films. Ralph W. Rice, D.O., Los Angeles 373
The Cranial Vertebrae. Part II. Charlotte Weaver, D.O., Akron, Ohio 374

EDITORIALS—
Osteopathic Research Imperative—IV. Ray G. Hulburt, D.O., and R. C. McCaughan, D.O., Chicago 380
Visual Education in Osteopathy. Georgia A. Steunenberg, D.O., Los Angeles 381
A.O.A. Memberships Increasing. Ray G. Hulburt, D.O., Chicago 381
Referred Pain in Low Back Pathology. R. E. Duffell, D.O., Chicago 382

SPECIAL ARTICLE—
Where Our Students Come From. Asa Willard, D.O., Missoula, Mont. 383

A. T. STILL OSTEOPATHIC FOUNDATION AND RESEARCH INSTITUTE—
Professional Support. R. E. Becker, D.O., Chicago 384
Clinical Research Needed. Arthur D. Becker, D.O., Des Moines, Iowa 385

CASE REPORTS—
Chronic Headaches. Thomas J. Meyers, D.O., Pasadena, Calif. 385

CONVENTION NEWS—
Extensive Scientific Exhibit in the Making. Helen M. Dunning, D.O., New York 386
Past Presidents' Day at the Convention George W. Riley, D.O., New York 386

DEPARTMENT OF PROFESSIONAL AFFAIRS—
Bureau of Professional Development: Plea for Case Reports on Birth Injuries. A. E. Allen, D.O., Minneapolis 387

DEPARTMENT OF PUBLIC AFFAIRS—
Bureau of Industrial and Institutional Service: Social Justice for the Workingman. J. J. McCormack, D.O., Sheboygan, Wis. 387
Committee on Vocational Guidance: Students Contact Prospects. Mary L. Heist, D.O., Kitchener, Ont. 388
Legal and Legislative 389

ASSOCIATED COLLEGES OF OSTEOPATHY—
The Teaching of Osteopathic Principles. H. E. Litton, D.O., Kirksville, Mo. 391

AMERICAN OSTEOPATHIC SOCIETY OF PROCTOLOGY—
Diagnosis of Cancer of the Rectum. M. A. Boyes, D.O., Parkersburg, W. Va. 393

AMERICAN OSTEOPATHIC SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY—
The Effects of Deviation of the Septum on the Physiology of the Nose. W. F. Rossman, D.O., Grove City, Pa. 396

DIAGNOSIS AND TREATMENT—
Memory. F. M. Still, D.O., Macon, Mo. 397

CURRENT MEDICAL LITERATURE 398
CURRENT OSTEOPATHIC LITERATURE 399
BOOK NOTICES 400
STATE BOARDS 401
CONVENTIONS AND MEETINGS 401

SUBJECT INDEX

Allen, A. E.:
Plea for Case Reports on Birth Injuries 387-Pr.A
Amidopyrin Scheduled as a Poison ..... 391-Ab.
Appendicitis, Roentgen Ray Diagnosis of [Karibo] 371*
Associated Colleges of Osteopathy 391
The Teaching of Osteopathic Principles [Litton] 391
Asthenopia [Galbreath] 399-COL
Becker, Arthur D.:
Clinical Research Needed 385
Becker, R.E.:
Professional Support of Research Institute 384
Birth Injuries, Plea for Case Reports..387-Pr.A.
Book Notices:
The Obstetric Pelvis. Herbert Thoms, M.D. 400-BN
The International Medical Annual. H. Letheby Tidy, M.D., and A. Rendle Short, M.D. 400-BN
Growing Superior Children. Newton Kugelmass, M.D. 400-BN
A.B.C. of the Endocrines. Jennie Gregory, M.S. 400-BN
The Radiology of Bones and Joints. James F. Brailsford, M.D. 401-BN
Boyes, M. A.:
Diagnosis of Cancer of the Rectum..393-OSP
Cancer of the Rectum, Diagnosis of [Boyes] 393-OSP
Case Reports 385-CH
Colleges:
The Teaching of Osteopathic Principles [Litton] 391
Where Our Students Come From [Willard] 383-SA
Compensation: Social Justice for the Workingman 387-Pu.A
Convention, New York:
Extensive Scientific Exhibit in the Making [Dunning] 386-Pr.A
Past Presidents' Day [Riley] 386-Pr.A
Outstanding 379
Conventions and Meetings:
Announcements 401
Official and Affiliated Organizations 402
Special and Specialty Groups 405-A
Current Medical Literature 398-CML
Current Osteopathic Literature 399-COL
Diagnosis and Treatment 397-DT
Diphtheria [Jones] 400-COL
Drew, Edward G.:
An Apparatus for the Application of Continuous Negative Pressure for Drainage of Body Cavities 369*
Duffell, R. E.:
Current Medical Literature 398-CML
Current Osteopathic Literature 399-COL
Referred Pain in Low Back Pathology 382-E
Dunning, Helen M.:
Extensive Scientific Exhibit in the Making 386-Pr.A
Duodenal and Gastric Dysfunction and the X-Ray [Karibo] 371*
Education:
Production of Osteopathic Films [Rice]..373*
Teaching of Osteopathic Principles [Litton] 391
Embryology: The Cranial Vertebrae. Part II. [Weaver] 374*
Eyestrain [Galbreath] 399-COL
Fibrositis, Manipulative Treatment of Subacute and Chronic [Wilson] 398-CML
Flack, Arthur M.:
An Apparatus for the Application of Continuous Negative Pressure for Drainage of Body Cavities 369*
Gastric and Duodenal Dysfunction and the X-Ray [Karibo] 371*
Headaches, Chronic [Meyers] 385-CH
Heist, Mary L.:
Students Contact Prospects 388-Pu.A
Hulburt, Ray G.:
New York Convention to Be Outstanding 379
A.O.A. Memberships Increasing 381-E
Osteopathic Research Imperative—IV. 380-E
Hyoid and Temporomandibular Technic [Collins] 399-COL
Ileus, Surgical Treatment of [Witt] 365*
Industrial and Institutional Service, Bureau of 387-Pu.A
Intervertebral Disc, the [Joplin] 398-CML
Karibo, Charles J.:
Roentgen Ray Diagnosis of Chronic Appendicitis and Its Relationship to Gastric and Duodenal Dysfunction..371*
Kummell's Disease Under Osteopathic Management [McKissick] 363*
Legal and Legislative:
Reregistration of Licenses 389-LL
Illinois, Indiana, Iowa, Kentucky 389-LL
Massachusetts, Mississippi, New Jersey, New York, Oklahoma 390-LL
Rhode Island, South Carolina 391-LL
Lesion, What Constitutes an Osteopathic [MacBain] 399-COL
Litton, H. E.:
The Teaching of Osteopathic Principles..391
Low Back Pathology, Referred Pain in..382-E
McCaughan, R. C.:
Osteopathic Research Imperative—IV 380-E
McCormack, J. J.:
Social Justice for the Workingman 387-Pu.A.
McKissick, Douglas R.:
Kummell's Disease Under Osteopathic Management 363*
Memberships in A.O.A. Increasing 381-E
Memory [Still] 397-DT
Meyers, Thomas J.:
Chronic Headaches 385-CH
Motion Picture Films, Production of [Rice] 373*
Visual Education in Osteopathy 381-E
Nose, The Effects of Deviation of the Septum on the Physiology of the Nose [Rossman] 396-OO
Ophthalmology and Otolaryngology 396-OO
Osteopathic Research Imperative—IV 380-E
Proctology, American Osteopathic Society of 393-OSP
Professional Development, Bureau of..387-Pr.A
Rectum, Diagnosis of Cancer of the [Boyes] 393-OSP
Research:
Scottish Osteopathic Research Institute..391
Imperative, Osteopathic—IV 380-E
Research Institute and Osteopathic Foundation:
Plan for Professional Support [R. E. Becker] 384
Clinical Research Needed [Arthur D. Becker] 385
Rice, Ralph W.:
Production of Osteopathic Educational Films 373*
Riley, George W.:
Past Presidents' Day at the Convention 386-Pr.A
Roentgen Ray Diagnosis of Chronic Appendicitis and Its Relationship to Gastric and Duodenal Dysfunction [Karibo] 371*
Rossman, W. F.:
The Effects of Deviation of the Septum on the Physiology of the Nose 396-OO
Sacroiliac and Lumbosacral Referred Pain 382-E
Scientific Exhibit at New York 386-Pr.A
Scottish Osteopathic Research Institute 391
State Boards
Arizona, Colorado, Illinois, Iowa, Kansas, Kentucky, Vermont, West Virginia 401-SB
Steunenberg, Georgia A.:
Visual Education in Osteopathy 381-E
Still, F. M.:
Memory 397-DT
Students:
Contacting Prospects 388-Pu.A
Where They Come From [Willard]..383-SA
Surgical Procedures: An Apparatus for the Application of Continuous Negative Pressure for Drainage of Body Cavities [Drew and Flack] 369*
Temporomandibular and Hyoid Technic [Collins] 399-COL
Tuberculosis of Bone and Intrathoracic Lesions [Meng and Chenn] 399-COL
Vertebrae:
The Intervertebral Disc [Joplin] 398-CML
What Constitutes an Osteopathic Lesion [MacBain] 399-COL
The Cranial. Part II. [Weaver] 374*
Kummell's Disease Under Osteopathic Management [McKissick] 363*
Visual Education in Osteopathy 381-E
Vocational Guidance, Committee on..388-Pu.A
Weaver, Charlotte:
The Cranial Vertebrae. Part II 374*
Willard, Asa.:
Where Our Students Come From 383-SA
Witt, Philip A.:
Surgical Treatment of Ileus 365*
Workingman, Social Justice for the 387-Pu.A

Published monthly by the American Osteopathic Association. Office of Publication, 1140 Lake St., Oak Park, Ill. Address all communications to the Main Office at 430 North Michigan Ave., Chicago, Ill. Eastern Advertising Office, Lawrence B. Williams, Manager, 11 West 42nd St., New York, N.Y., telephone: Pennsylvania 6-1949. Subscription, $5 a year. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 31, 1922. Entered at the **Oak Park, Illinois,** post office as second class matter, April 1, 1926, under the Act of March 3, 1879. Copyright, 1934, by the American Osteopathic Association.

The FIRST SPOONFUL TO THE LAST . . .

Agarol is supplied in 6, 10 and 16 ounce bottles.

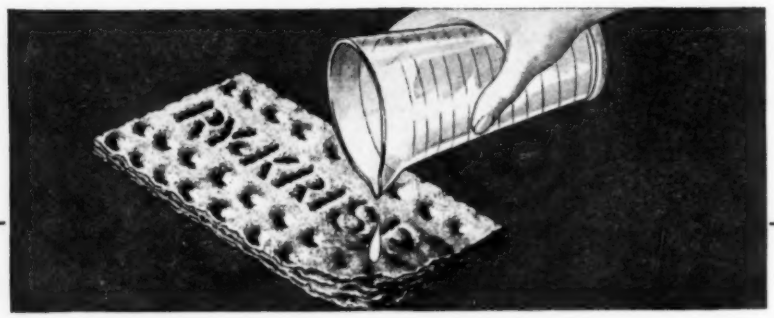
Uniformity of composition throughout is important in an emulsion. It assures uniform action from every dose. Agarol is such an emulsion of mineral oil and agar-agar with phenolphthalein. It pours freely as a good emulsion should. It mixes readily with liquids and stays mixed without "cracking."

In the relief of acute constipation and in the treatment of habitual constipation, Agarol affords proved efficiency, consistent reliability, combined with palatability that only purest ingredients can give without artificial flavoring. Let us send you a trial supply. Please ask for it on your letterhead.

AGAROL FOR CONSTIPATION

WILLIAM R. WARNER & COMPANY, INC., 113 West 18th Street, New York City

Common Constipation responds quickly to RY-KRISP a *natural* corrective



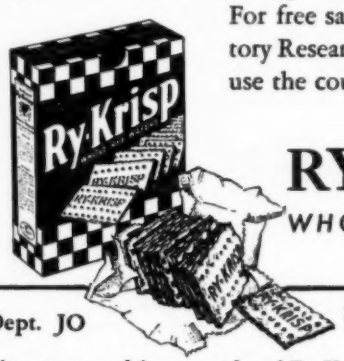
This is what happens when the liquids in the stomach come in contact with Ry-Krisp. Each wafer can absorb five times its weight in water—producing bulk to stimulate peristaltic action. Its bran, pentosan and crude fiber content all tend to produce normal bowel action.

Because it is a tempting, highly palatable food which patients are *glad* to eat regularly, many physicians find Ry-Krisp ideal as a natural corrective for common constipation due to insufficient bulk.

Made simply of whole rye, salt and water—double-baked to tempting, brittle crispness—Ry-Krisp has a high percentage of bran, high pentosan and crude fiber content—all of which encourage normal bowel action. Moreover, its low water content (only 6.8%) and porous structure permit each wafer to absorb five times its own weight in water. This produces needed bulk to stimulate natural peristaltic action.

The very fact that Ry-Krisp is such a pleasant alternate for crackers, toast or bread—at breakfast, lunch or dinner—is assurance of satisfactory results in the diet. Your patients—both children and adults—are *glad* to eat these crisp whole rye wafers regularly.

For free samples and the Laboratory Research Report on Ry-Krisp, use the coupon below.



RY-KRISP
WHOLE RYE WAFERS

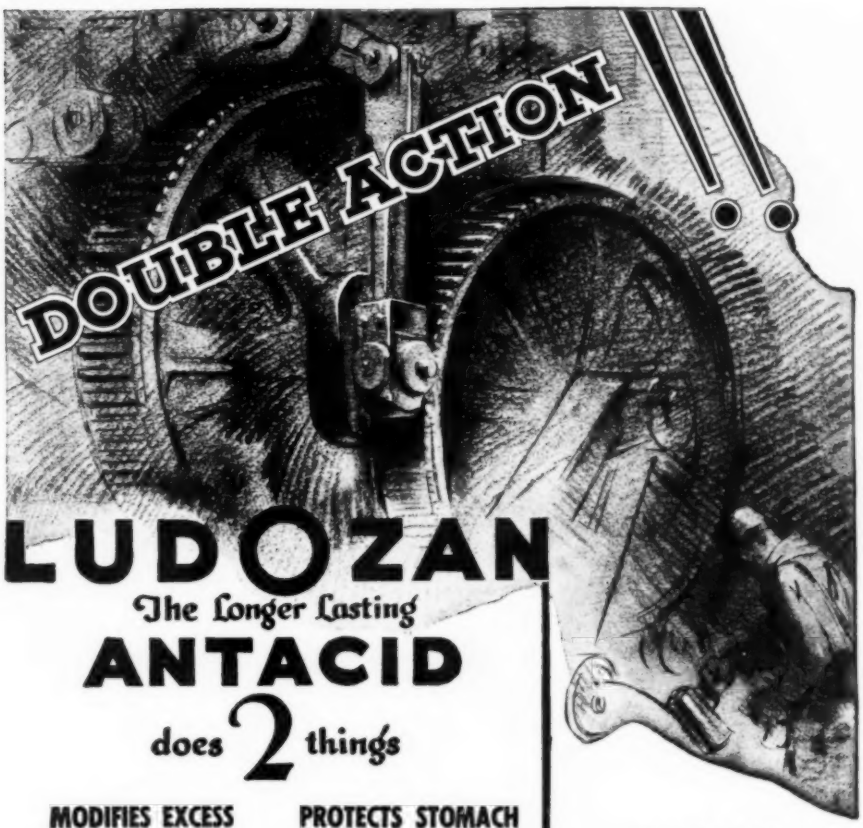
RALSTON PURINA COMPANY, Dept. JO 169 Checkerboard Square, St. Louis, Mo.

Please send me literature and free samples of Ry-Krisp

Name _____ *D. O. Address* _____

City _____ *State* _____

(This offer limited to residents of the United States and Canada)



LUDOZAN

The Longer Lasting

ANTACID

does 2 things

MODIFIES EXCESS STOMACH ACIDS

Ludozan* provides a prolonged antacid action which modifies excess stomach acid. This prevents the recurrence of hyperacidity for hours. Ludozan does not interrupt enzymatic action or cause diarrhea, constipation or alkalosis.

PROTECTS STOMACH FROM IRRITATION

Ludozan forms a soothing film-like layer on the gastric wall. This acts as a barrier to protect the tender tissues from chemical and mechanical irritation. In this way Ludozan, the longer-lasting antacid, aids nature in its healing processes.

COMPOSITION — Ludozan is an insoluble aluminium silicate containing about 12% of soluble sodium silicate. For more stubborn cases, Ludozan with Belladonna (containing 0.5% Belladonna).

SCHERING CORPORATION

BLOOMFIELD • • • NEW JERSEY

*Reg. U. S. Pat. Off. ©1936, S. C., Bfld., N. J.

EASILY DISPENSED!

There are 21 separate, plain white prescription envelopes to a can of Ludozan and Ludozan with 0.5% Belladonna. Each paper contains a uniform dose of 1 teaspoonful.

FILL IN and MAIL COUPON for SAMPLE and LITERATURE

SCHERING CORPORATION,
BLOOMFIELD, N. J. JAO-4

I should like samples and literature on LUDOZAN.

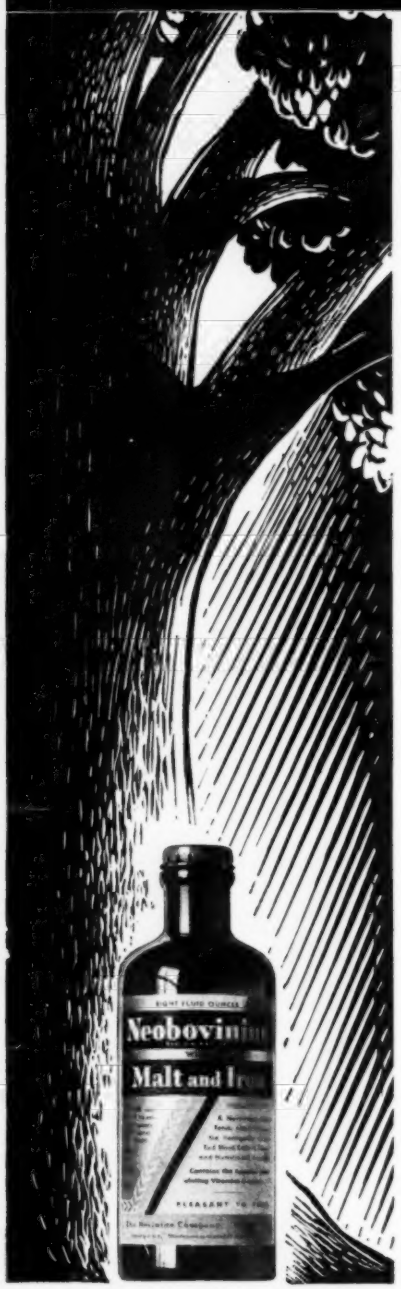
.....D.O.

St. & No. .....

City.....State.....

3311—FP 2-18-36

Neobovinine



with
Malt and Iron

Thousands of physicians now depend upon Neobovinine with Malt and Iron for rebuilding the strength of convalescent or "run down" patients.

464 mgm. of Iron per 100 cc., Liver Extract of proven potency, Malt Extract and Vitamins B and G in such proportions as to insure effective treatment in secondary anemias! These constitute its simple formula.

In addition, Neobovinine with Malt and Iron is palatable, easily administered and reasonable in price.

★

Samples free on request

Neobovinine
8134 McCormick Boulevard
Chicago, Illinois

IRON · CALCIUM PHOSPHORUS · VITAMIN D

in this one delicious high caloric, easily digested food-drink

DURING convalescence from illness, an operation or childbirth—or when it is advisable to increase the weight of a malnourished child—*there is one food-drink which has proved itself exceptionally useful.*

That food-drink is Cocomalt. Delicious and tempting, easily digested and quickly assimilated—Cocomalt not only adds easily assimilated Iron to the diet, but also richly provides Calcium, Phosphorus Vitamin D.

An ounce of Cocomalt which is the amount used to make one cup or glass) supplies 5 milligrams of Iron in easily assimilated form. Thus three cups or glasses of Cocomalt a day supply 15 milligrams—*which is the amount of Iron recognized as the normal daily nutritional requirement.*

Here, then, is one form in which even a capricious child or a finicky adult will take Iron willingly—and at the same time receive other important food essentials. Prepared as directed, Cocomalt adds 70% more food-energy value to a glass of milk.

Vitamin D, Calcium, Phosphorus

Cocomalt is fortified with Vitamin D under license granted by the Wisconsin Alumni Research Foundation. Each ounce of Cocomalt contains not less than 81 U.S.P. Vitamin D units.

Cocomalt also has a rich Calcium and Phosphorous content. Each cup or glass of Cocomalt in milk provides .32 gram of Calcium and .28 gram of Phosphorus. Thus Cocomalt supplies in good biological ratio three food essentials required for proper growth and development of bones and teeth: Calcium, Phosphorus and Vitamin D.

Cocomalt

Cocomalt is the registered trade-mark of the R. B. Davis Co., Hoboken, N. J.

FREE TO

OSTEOPATHIC PHYSICIANS

We will be glad to send you a trial-size can of delicious Cocomalt. Simply mail this coupon with your name and address.

R. B. Davis Co., Dept. 11D, Hoboken, N.J.

Please send me a trial-size can of Cocomalt without charge.

*Dr.*_____

*Address*_____

*City*_____ *State*_____

CAL-BIS-MA-CAL-BIS-MA-CAL-BIS-MA-

ACID RESISTANCE WITH KALAK

Hypertonic — Alkaline — Carbonated — Not Laxative

The years of experience with physicians who have used Kalak show that the use of a formula containing calcium, magnesium, sodium and potassium salts represents a correctly balanced solution. This is Kalak which, as such, aids in maintaining a balanced base reserve.

How Alkaline Is Kalak?

One liter of Kalak requires more than 700 cc. N/10 HCl for neutralization of bases present as bicarbonates. Kalak is capable of neutralizing approximately three-quarters its volume of decinormal hydrochloric acid.

KALAK WATER CO. OF NEW YORK, Inc.
6 CHURCH STREET • NEW YORK CITY

Kalak

More than 59,000 Cases Successfully Treated

Write today for this interesting free book and a portfolio of "Letters in Evidence" from Physicians.

Philo Burt Company Jamestown, N. Y.

Let Us Send YOU This Book, Doctor

We believe, if you will consider its contents in the light of your professional knowledge and experience you will readily recognize the scientific merit of the Philo Burt Method for relieving and correcting spinal curvature, with its sequela.

The Philo Burt Appliance provides efficient support and protection in cases of spinal injury, deformity and disease. Avail yourself of the first opportunity to conclusively demonstrate its value.

It has been our privilege to co-operate with thousands of practitioners and we gladly refer you to your own contemporaries.

30 DAYS TRIAL

We will make a Philo Burt Appliance to measure, to your order, and allow you 30 days to find it meets the requirements and you and your patients are satisfied.

PHILO BURT COMPANY
181-4 Odd Fellows Temple,
Jamestown, N. Y.

Send me your free book and portfolio of "Letters in Evidence."

Name.....

Address.....

City and State.....

ANACIN GIVES PROTECTION FOR OSTEOPATHS

Anacin aids the osteopathic physician to relieve pain associated with neuritis, rheumatism and menstrual disturbances, quickly and safely.

Samples of Anacin tablets will be sent to osteopathic physicians on receipt of a request on your professional letterhead.

THE ANACIN COMPANY
CHICAGO, ILLINOIS

ANACIN

Facts you should know about RIPE BANANAS

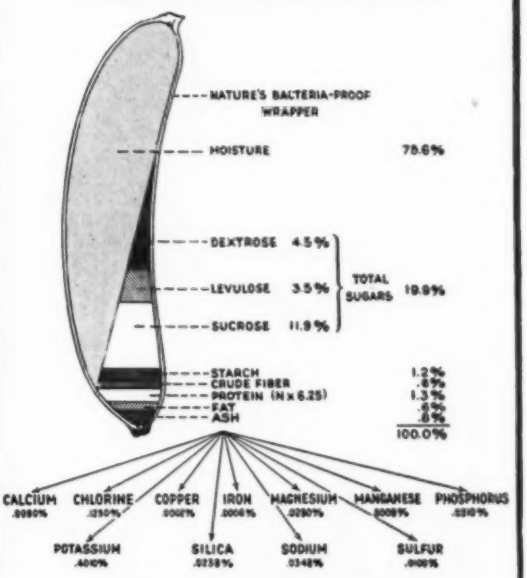
Easily digested . . . Non-irritating . . . Good source of food energy, vitamins, minerals . . . Pleasant taste

RIPE BANANAS are an easily digested, bland food which supplies essential vitamins and minerals, and is popular with most people. They are non-irritating . . . do not ferment easily in the intestines . . . and create intestinal conditions unfavorable to the growth of putrefactive bacteria.

The carbohydrates of a ripe banana comprise about 22% of its total weight when peeled. They consist chiefly of a mixture of sugars—sucrose, dextrose, and levulose—which are readily absorbed, even by infants and young children with gastro-intestinal disturbances.

Besides being an excellent source of food energy, bananas are a good source of Vitamins A, B, C, and G, contribute to the diet important minerals, and yield alkaline mineral residues in the body. With their soft fiber, pectins, vitamins, high content of sugars, and low content of protein and fat, bananas seem adapted to act as a normalizer of colonic functioning.

Proximate Chemical Composition of Fully Ripe Bananas



VITAMINS IN BANANAS

(Sherman Units Per Ounce)

A-100 B-8 C-5 G-10

It's easy to have RIPE BANANAS *all the time*

Anticipate your banana needs. Buy them as you find them. If they are partially ripe when purchased—i.e., in the green-tipped stage—let them ripen at home under comfortable room temperature (never in the refrigerator) until the pulp has softened and the skin is golden yellow flecked with brown. That is when they're fully ripe and at their very best in flavor . . . one of nature's finest foods.

MAIL COUPON FOR FREE BOOKLET
that tells how bananas can help you in your work.

UNITED FRUIT CO., Educational Dept.,
1 Federal Street, Boston, Massachusetts

Please send me, FREE, my copy of "Dietary Uses of the Banana in Health and Disease," written by a well-known authority on medicine and nutrition.

Name_____

Address_____

City_____ State_____

J.A.O.A. 4-36

SAFE WEANING *to* BOTTLE FEEDING

The Baby Regulates Breast Feeding

The Doctor Regulates Bottle Feeding

INFANTS should be weaned from the breast at eight months. The season of the year is immaterial with modern knowledge of nutrition and hygiene. Gradual weaning is desirable. It is accomplished by progressively increasing the number of bottle feedings in substitution for the breast feedings.

The formula consists of 6 ounces milk, 2 ounces water, 2 teaspoons Karo for each bottle—one the first week; two the second, etc. The schedule for additional foods remains the same as during nursing. But babies unaccustomed to the bottle often refuse it as long as the breast is available. Then abrupt weaning becomes necessary, some person other than the mother giving the feedings.

The formula in abrupt weaning prepared for the entire day consists of 24 ounces milk, 8 ounces water, 3 tablespoons Karo, divided into 4 feedings, 8

Feeding	*1st Week*	*2nd Week*	*3rd Week*	*4th Week*
6:00 A.M.	Breast	Breast	Breast	Bottle
10:00 A.M.	Breast	Breast	Bottle	Bottle
2:00 P.M.	Breast	Bottle	Bottle	Bottle
6:00 P.M.	Bottle	Bottle	Bottle	Bottle

ounces each, at 4 hour intervals. The formula can be concentrated once the baby is adjusted to the bottle feeding.

Karo is a mixture of dextrins, maltose and dextrose (with a small percentage of sucrose added for flavor) practically free from protein, starch and minerals. Karo is a non-allergic carbohydrate, not readily fermentable, well tolerated, readily digested, effectively utilized and economical for both the baby and the budget.

Corn Products Consulting Service for Physicians is available for further clinical information regarding Karo. Please Address: Corn Products Sales Company, Dept. AO-4, 17 Battery Place, New York City.

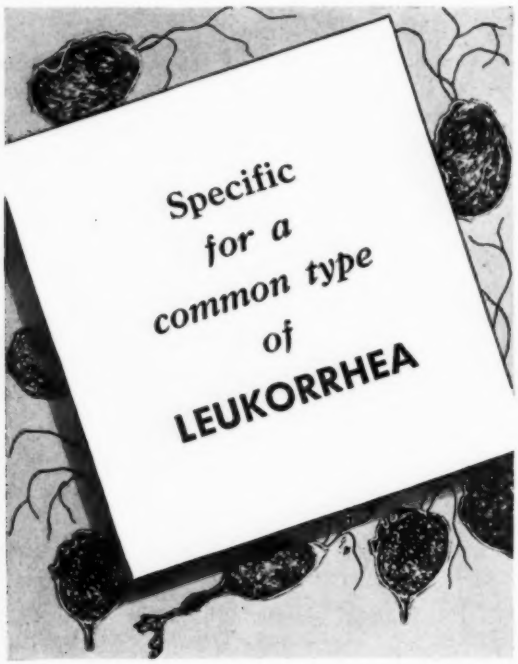
ENJOY NEW YORK

from The Waldorf point of view

Stand in one of the towers of The Waldorf-Astoria and survey the New York that lies within a few blocks of you. Fifth Avenue, humming with smart shoppers. Broadway, gay with its theatres and amusements. Park Avenue, Madison Avenue, and uptown to Central Park . . . the New York of clubs, art galleries, museums, churches. But the other New York that interests you lies *within* The Waldorf, and you are part of it the moment you stop there. People who make news and history meet in the lobbies, the ballrooms, the restaurants. New York that amuses . . . New York that matters gathers there. Thus, you will find even your briefest Waldorf-Astoria visit is stimulating and enjoyable. Room rates are from five dollars the day.

THE WALDORF-ASTORIA

PARK AVENUE · 49TH TO 50TH STREETS · NEW YORK



● Devegan is a distinct advance in the therapy of vaginitis due to trichomonas infection. It not only destroys these parasites but also re-establishes a normal vaginal flora and thus greatly reduces the recurrences so frequently observed heretofore. Even in long-standing cases the effect is promptly exerted, and without local or systemic reactions.

DEVEGAN
Reg. U. S. Pat. Off. & Canada

Supplied in boxes of 25 and 250 tablets, each containing 0.25 Gm. of acetylaminohydroxyphenylarsonic acid.

Sample and detailed literature on request.

WINTHROP CHEMICAL COMPANY, INC.
Pharmaceuticals of Merit for the Physician
NEW YORK, N. Y. WINDSOR, ONT.
Factories: Rensselaer, N. Y.—Windsor, Ont.
467-M

GIRL MEETS BOY

But there is little enjoyment in the meeting if either one is suffering from sour stomach and acid indigestion.

BiSoDoL offers a rational and simple method of combating acid excess without danger of setting up an alkaline imbalance.

POWDER **TABLET**

Have you tried the new BiSoDoL Mints?
(BiSoDoL in tablet form)

PROFESSIONAL SAMPLES ON REQUEST

The BiSoDol Company
NEW HAVEN, CONN.

●

WHEREVER ALKALINE MEDICATION IS INDICATED

BiSoDoL

Osteopathic Physicians

HAVE PROVED FOR THEMSELVES THE MERIT OF

★ PENETRO ★

● Letters from osteopathic physicians the country over come in daily . . . telling about their experiences with Penetro in the treatment of colds and other congestive ailments.

All find that Penetro's mutton suet base plus its 113% to 227% more medication than any other nationally sold cold salve . . . give Penetro its outstanding superiority.

Penetro melts at body temperature, and having an animal fat base, it may be readily rubbed into the skin carrying the highly concentrated medication with it.

Thus, the osteopathic physician is greatly assisted in producing active hyperemia to dispel congestion and bring greater relaxation. Penetro is stainless and snow-white.

THE SALVE WITH A BASE OF OLD FASHIONED MUTTON SUET

PENETRO

R. E. Travers, D. O.
c/o St. Joseph Laboratories
Memphis, Tennessee

Please have my druggist deliver to me without charge samples of Penetro, the salve with old-fashioned mutton suet, for clinical tests.

*Druggist*_____
*Street Address*_____
*City*_____ *State*_____
*Doctor*_____
*Street Address*_____
*City*_____ *State*_____

TASTE is a SENSATION

PLEASANT OR OTHERWISE

NEO-CULTOL

TASTES GOOD ... THAT'S WHY CHILDREN LIKE IT

NEO-CULTOL supplies the *acidophilus bacilli* in a mineral oil jelly medium. It is deliciously flavored with chocolate. This fact enables both children and adults to follow the treatment pleasantly and effectively over extended periods.

NEO-CULTOL provides a new angle to intestinal bacterial therapy. Its pleasant chocolate, flavor the long viability of the basic culture; and the gentle lubricating qualities of the mineral oil jelly combine to provide a product of assured value in correcting constipation and toxic conditions of the intestinal tract.

Send for Complimentary Jar

THE ARLINGTON CHEMICAL CO.

YONKERS • NEW YORK

"Back Injuries in Industry *and* Compensation Insurance"

By E. P. MALONE, D.O.

A reprint from the August, 1935, issue of the *American Federationist*, (official organ of the American Federation of Labor). Endorsed by the Bureau of Industrial and Institutional Service of the American Osteopathic Association.

Explains the effectiveness of specific osteopathic adjustment in the treatment of industrial back injuries. Should be given wide distribution to industrial workers, employers, members of the state compensation commissions, and compensation insurance people.

Local doctors should cooperate in mailing this booklet to members of various labor unions, or, give talks and demonstrations before union members, followed by the distribution of the pamphlets.

Prices on Booklet

QUANTITY	PER 100	QUANTITY	PER 100
Under 200	$5.00	1100 to 2000	$3.75
200 to 400	4.75	Over 2000	3.50
500 to 1000	4.00	Sample copy	6c

Price includes envelopes and prepaid parcel postage or express to individual addresses. If professional card imprint is desired on back cover, a charge of fifty cents will be made for each order.

E. P. MALONE, D.O. MIAMI, OKLA.

PROLONGED DIRECT INHALATION

There is no more direct means of treating certain respiratory diseases than by inhalation. Vapo-Cresolene—specially prepared cresols of coal tar—offers prolonged inhalation. The medication is carried in high concentration to the inflammed mucous membrane, there exerting the antiphlogistic and antiseptic effects required to overcome the lesions. Decades of use have proved its value in conditions where an inhalant is indicated. Antiseptic, antispasmodic, soothing, penetrating. Prescribed for the relief of paroxysmal cough and dyspnoea as in WHOOPING COUGH, CATARRHAL CROUP, and BRONCHIAL ASTHMA; Cough in Bronchopneumonia and Bronchitis and for chest colds.

Lamp type and electric vaporizer.
Special discount to physicians, nurses, hospitals.

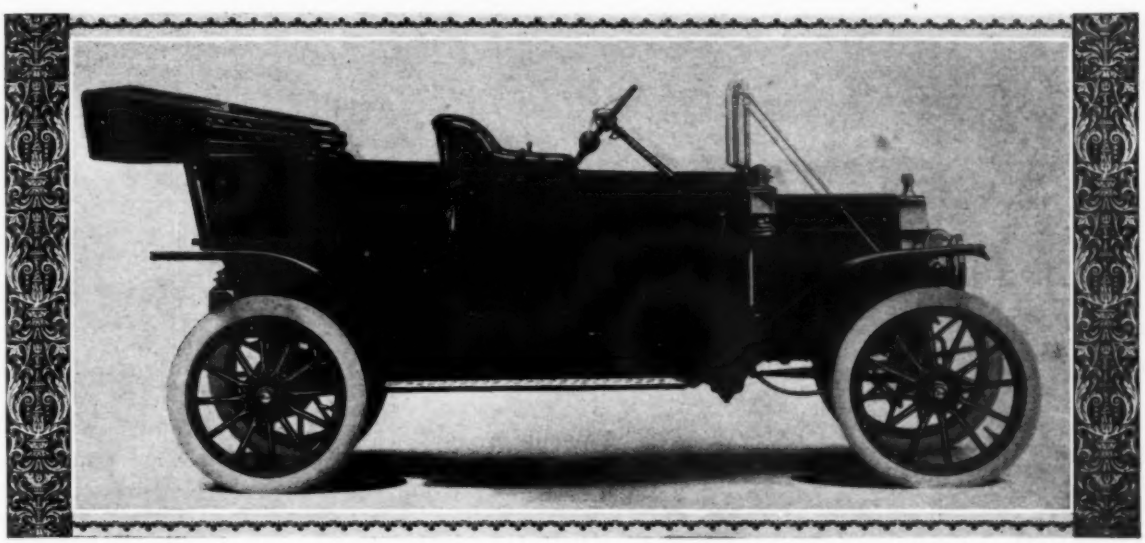
Write for booklet "Effective Inhalation Therapy."

VAPO-CRESOLENE CO., 62 Cortlandt St., New York, N.Y.
DEPT. G

NAME.....

ADDRESS.....

WHEN AUTOMOBILES LOOKED LIKE THIS



S. M. A. was FIRST made ANTIRACHITIC

Ever since 1914, S. M. A. has contained enough Vitamin D activity to prevent rickets and spasmophilia

Vitamin D is one important factor in infant nutrition but it is not new to the many thousands of physicians who have prescribed S.M.A. (containing Vitamin D) during the past twenty-one years.

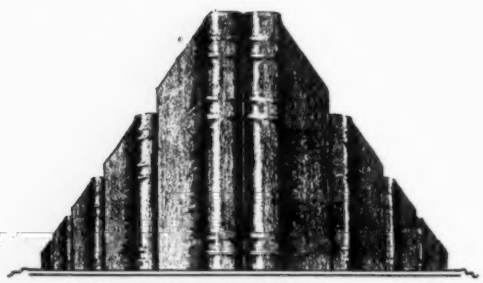
Vitamin D is only one of the many features of S.M.A. The fundamental idea behind S.M.A. is that breast milk from the normal, completely nourished mother is the ideal food for the human infant. That is why S.M.A. is made to resemble breast milk in percentages of carbohydrate, protein, fat and total salts (ash) content, and why even the chemical and physical constants of the fat in S.M.A. are like those of breast milk fat.

Physicians from coast to coast, in city, town, and village, are prescribing S.M.A. today—not for any **one** of its many desirable features, but because **all** of them combine to produce excellent nutritional **results more simply and more quickly.**

May we send you literature and samples?

S. M. A. is a food for infants—derived from tuberculin tested cows' milk, the fat of which is replaced by animal and vegetable fats including biologically tested cod liver oil; with the addition of milk sugar and potassium chloride; altogether forming an antirachitic food. When diluted according to directions, it is *essentially similar to human milk* in percentages of protein, fat, carbohydrates and ash, in chemical constants of the fat and in physical properties.

S. M. A. CORPORATION • CLEVELAND, OHIO



what **AUTHORITIES** *say about*

SALINE APERIENTS

•

EFFICIENT. Osler cites the saline waters as having a permanently useful effect in correcting digestive conditions. (Osler's Modern Medicine.)

NON-TOXIC. McGuigan says that saline salts are non-toxic. (Text-Book of Pharmacology and Therapeutics.)

• • •

SAL HEPATICA effectively and gently rids the bowel of injurious waste materials. Also, it acts to "save" and replenish plasma alkaline reserve. Resistance against many ailments is thus strengthened.

Sal Hepatica is effervescent and pleasing to taste. Its ingredients (their ratio and action) resemble those of famous mineral springs. Try Sal Hepatica clinically! Fill in and mail the coupon for samples and literature.

SAL HEPATICA
CLEANS THE INTESTINAL TRACT
AND COMBATS ACIDITY

BRISTOL-MYERS CO., 19-HH W. 50th St., New York

Send me without charge professional package of Sal Hepatica and literature.

..... D.O.
(Please enclose card)

St. & No. .....

City ..... State .....

IN THE TREATMENT OF ARTHRITIS

The recent work of Dreyer and Reed—University of Illinois College of Medicine—using massive doses of Vitamin D has proved interesting but difficult of application due to prohibitive costs of former existing sources.

conDoL

A MUCH LESS EXPENSIVE SOURCE OF VITAMIN D

A stable solution of irradiated ergosterol in a palatable highly refined oil of Sesame, biologically tested and standardized at not less than 12,000 U. S. P.XI units per gram.

Produced by the Campsie Process U. S. Pat. No. 1980971. Dom. of Can. Pat. No. 351916

Descriptive literature available to the profession on request. Please enclose card or letterhead.

PROFESSIONAL DISCOUNT 20%

If your druggist is not stocked, orders will be filled direct by

National Institute of Nutrition

333 Linwood Ave.
Buffalo, N. Y.

6777 Hollywood Blvd.
Los Angeles, Calif.

Trademark Registered **STORM** Trademark Registered

Binder and Abdominal Supporter

(Picture Shows Type N)

Gives perfect uplift. Light, comfortable, durable. Made of cotton, linen or silk. Washable as underwear. "Type A" has thigh straps; "Type N," garters. No two are alike; every one is made for the patient who is to wear it.

For general support in Pregnancy, Visceroptosis, Obesity, etc. For special support in Hernia, Sacro-Iliac needs, etc., and for Post Operative support of incisions.

Ask for Literature

KATHERINE L. STORM, M.D.

Originator, Owner and Maker

1701 Diamond Street **Philadelphia**

SILVOGON

Even a trial will convince you that this product has three points of excellence.

Efficacy

Economy

Cleanliness

ERNST BISCHOFF COMPANY
Incorporated

135 Hudson Street **New York, N. Y.**

RESYL gives you mucifuge action—liquefies mucus and brings it up readily.

RESYL exhibits prompt therapeutic effectiveness in respiratory irritations because of the systemic modification of its molecule (glycero-guaiacol-ether) before elimination.

RESYL promotes a feeling of well-being, improves the appetite and provides a satisfactory mucifuge, both for children and adults.

CIBA COMPANY, INC. AO-4
627 Greenwich Street, New York, N. Y.
Please send samples and literature on Resyl "Ciba".
..... *D.O.*
St. and No......
City..... *State*.....

CIBA COMPANY INC., New York, N. Y.

CANNED FOODS AND THE PUBLIC HEALTH

III. Chemical Preservatives

• Some of our readers have inquired as to whether or not chemical preservatives are used in commercially canned foods. In certain instances, this question was inspired by the fact that "canning compounds" were formerly sold for use in home canning and preserving operations. Such compounds, however, are rarely used by the housewife of today, and never by commercial canners.

We wish to state here that *no preservatives are used in commercially canned foods.*

Spoilage of food is principally caused by the growth and multiplication in food of microorganisms such as yeasts, molds, or certain types of bacteria. These microorganisms depend upon the food they inhabit for their nutrition and their life processes produce changes in the chemical or physical characteristics of food, or both. These changes lead us to state that the food has "spoiled".

Like other living organisms, these spoilage microorganisms can grow and multiply in a food only as long as conditions remain favorable for their existence. If any environmental factor, such as temperature, moisture or acidity, becomes unfavorable, these spoilage organisms are destroyed, or their development is inhibited.

All methods of food preservation have a common underlying principle; they all alter some factor or factors in the food environment so as to render conditions unfavorable for the growth or development of spoilage organisms in the food.

Thus, foods may be preserved by freezing or refrigeration, which serves to lower the temperature below that optimum for growth of certain spoilage organisms; dried foods keep because the moisture content has been reduced to an unfavorably low level; certain fermented foods keep because of the development of high acidity. All of these methods produce changes in the environment in which the food spoilage organisms must live.

Commercial canning is a method of food preservation in which the temperature factor in the environment is raised to a level above that optimum for growth of spoilage microorganisms. Thus, canned foods keep because in their preparation they are subjected to heat processes in hermetically sealed containers. The thermal processes raise the temperature of the foods to those temperatures at which the most resistant spoilage organisms present cannot grow or survive. (1)

The hermetic seal insures protection against future infection of the food by such organisms.

Thus, commercial canning is a method of food preservation which has for its basis the thermal destruction of spoilage organisms; no chemical preservatives are needed to insure preservation of the foods, and, consequently, none are used.

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) The Microbiology of Foods, F. W. Tanner, Twin City Pub. Co., Champaign, Ill., 1932

This is the eleventh in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.

The Journal of the American Osteopathic Association

PUBLISHED MONTHLY BY THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 35, No. 8 | 430 N. Michigan Ave., Chicago, Ill. | April, 1936

Kümmell's Disease Under Osteopathic Management

DOUGLAS R. MCKISSICK, D.O.
Chicago

It is not the purpose of this paper to discuss this disease in detail. It was first described by Professor Kümmell of Hamburg in 1895 and is sometimes called traumatic spondylitis. The response of a case, herein outlined, under osteopathic management differed so markedly from the usual results under allopathic care that it was deemed worthy of publication.

Briefly, the disease may be said to be a rarifying osteitis of one or more vertebral bodies, most usually occurring in the thoracic region, manifesting itself weeks or months after an injury to the spine. Roentgenological examination at the time of the injury is negative. Kümmell stated that the disease is always preceded by injury, and experiments have been done which seem to point to the fact that vertebral bodies can be injured through trauma without fracture, such as a contusion of the spongiosa of the body with hemorrhagic infiltration and periosteal thickening. It has been thought for years that the condition is essentially that of fracture with subsequent softening of the callus. The softening and collapse give rise to deformities not unlike those of Pott's disease.

The symptomatology is usually that of pain in the injured region of the spine, and after a varying interval (during which time the patient may be free from this complaint) pain again occurs at the site of the original injury. The spinal cord, as a rule, escapes compression. Albee[1] states that in the typical case an individual, after a sprain or injury to the back causing very little suffering, returns to his work, and only after weeks or months does severe pain call his attention to a rounded kyphosis, generally in the thoracic region. The disease, according to Scudder,[2] may be divided into three stages: First, the initial injury to the spinal column associated with varying degrees of shock; second, the stage "of relative well-being;" third, the stage when, after weeks or months, an angular kyphosis appears.

The pathology is described as being a rarifying osteitis with subsequent atrophy, usually resulting in a wedge-shaped vertebra. Similar pathology is seen in such conditions as Kienbock's disease of the wrist, Köhler's disease of the foot, and perhaps in certain conditions of the hip, which are referred to as Perthes' disease.

The diagnosis is made from the history of *(a)* definite or trivial injury to the spinal column, *(b)* no definite pathology after roentgenological spinal examination at that time, *(c)* a period of "relative well-being," and finally *(d)* the development of a kyphotic, painful region in the spine. The ease with which a diagnosis is made depends upon the stage in which the patient is seen. In the differential diagnosis, tuberculous spinal caries, so-called back strains, spinal neurosis, hypertrophic arthritis, and the true ankylosing type of spondylitis must be considered.

The classical treatment[3] of the disease is to fix the spine by plaster jackets. In very severe cases, operations similar to those done for Pott's disease are sometimes carried out.

From a practical standpoint it is perhaps best to look upon Kümmell's disease as being a compression fracture of the spine with delayed symptoms, and it is therefore looked upon by some authorities as being preventable, by adequately recognizing and treating the condition as a compression fracture.

Unfortunately, we, as osteopathic physicians, see these cases usually after they have been seen by someone else, and the disease is well established.

The case herein reported is that of a boy, 14 years of age, who fell off a bicycle in April, 1934. He was six feet tall and weighed 120 pounds. At that time he complained of pain in the lower lumbar region, the pain tending to radiate down the course of the sciatic nerve, and becoming more severe on movement. An x-ray picture, taken of the spine at this time, was negative as to demonstrable spinal pathology. In the course of a week, his symptomatology had disappeared. He remained pain-free until October, 1934, when he returned with a complaint similar to the original one, but perhaps the pain was a little more severe in character. There was no demonstrable kyphosis.

Roentgenological examination of the spine (Figure 1) at this time revealed bony destruction of the adjacent surfaces of the second and third lumbar vertebrae and a definite narrowing of the intervening disc. The process was well established. A diagnosis of Kümmell's disease was given.

Fig. 1

This picture was taken in October, 1934, before the plaster cast was applied.

Fig. 2

Plate taken in March, 1935, showing regeneration of bone substance taking place.

A heavy plaster cast was made with an unusually large proportion of cloth, to minimize crumbling. The cast extended from the trochanters to the axillæ. The entire cast was bound well with adhesive tape. Since it was necessary that it be removable, so that osteopathic manipulative treatment might be given, after 24 hours to allow for setting the cast was cut along one side in the midaxillary line and in front in the midsternal line. The edges were trimmed and then bound with adhesive tape. It was then sent to an expert cast maker, who applied a series of hinges to the sides of the cast in the axillary line and buckles and straps along the midsternal line, so that the patient was able to slide out of the cast when the improvised door was swung open. (It might be mentioned here that this cast was a very serviceable one. It was comfortable and was used for 12 months without crumbling.)

The boy was placed at absolute bed rest, and the cast was removed once a week, at which time he was treated osteopathically. In this, the thought we kept before us was to minimize the stagnation and atrophy naturally resulting from immobilization. The entire spine was treated, the involved area with caution. Soft tissue work was uppermost, to stimulate circulation and drainage. Not to exceed 15 minutes was spent in administering such treatment.

After three months of this procedure, another x-ray picture was taken. This showed that regeneration of bone substance was beginning to take place. At the end of the fifth month an x-ray picture (Figure 2) revealed so much improvement that the patient was allowed to sit up in bed for a few minutes each day (still wearing the cast), gradually extending the time until he was able to sit up several hours a day. Then

he was allowed to get out of bed and stand erect for a few minutes each day, and the time of standing, and later walking, was gradually extended. He was not allowed to lift anything or to bend.

At the end of the eighth month another film revealed that almost complete filling in of the destroyed bone regions had taken place. By this time the patient had grown one and one-half inches in height and had gained twenty pounds in weight as compared with his height and weight at the time of the application of the cast.

During the period of increasing activity, the cast was left off for a few minutes in every 24 hours, the time gradually being extended until towards the end of the twelfth month the patient was allowed to sleep at night without the cast.

At the end of one year an x-ray picture revealed that practically a complete healing had taken place, and even though the joint space was still abnormally narrow, motion could be elicited between these two vertebrae.

Chicago Osteopathic Hospital
5200-50 Ellis Ave.

REFERENCES

1. Albee, Fred H.: Orthopedic and Reconstruction Surgery. W. B. Saunders Company, Philadelphia, 1919.
2. Scudder, Charles L.: Treatment of Fractures. Ed. 10. W. B. Saunders Company, Philadelphia, 1926.
3. Campbell, Willis C.: A Textbook on Orthopedic Surgery. W. B. Saunders Company, Philadelphia, 1930.

Surgical Treatment of Ileus*

PHILIP A. WITT, D.O.
Denver

With very little reflection the average surgeon can quickly think of four postoperative complications which prevent his lot from becoming anything resembling a bed of roses. I have in mind embolism, thrombosis, peritonitis, and intestinal obstruction.

Embolism and thrombosis can be prevented, in a measure, by the observance and application of certain precautions. Beyond a certain point we are unable to go. The mortality in many thousands of cases in countless clinics in this country and abroad seems to remain at an irreducible minimum. This minimum lingers at about one in every four hundred cases, in spite of the observance of all the surgical niceties and refinements of technic.

The development of peritonitis in a large percentage of cases may be prevented by the recognition of acute infections of the abdomen and their early treatment by means of surgery.

Intestinal obstruction, which is the subject of this paper, is a formidable complication. It is invariably fatal unless intelligently and promptly treated. A tremendous amount of research work has been applied to the subject within the past two decades the result of which has been a great reduction in the mortality.

Etiology.—Before detailing the treatment of ileus, it might be well to review the etiology and the changes which occur in the chemistry of the digestive tract. These changes must be comprehended and appreciated thoroughly before intelligent and effective therapy can be applied.

Ileus is defined by Dorland[1] as "severe colic due to intestinal obstruction." It is usually classified under two heads: (1) Mechanical, which, as the name implies, includes all of those conditions which, by the exertion of external or internal pressure, are capable of occluding the lumen of the gut. (2) Paralytic or adynamic, which is due to a paralysis of the muscular coats of the intestine and which may be brought about by several different factors to be discussed in detail later.

Irrespective of the etiology, once intestinal obstruction is established, at whatever level, it is invariably fatal if unrelieved. Therefore, before treatment can be intelligently applied, the type under consideration must be determined, exactly or at least approximately. Usually a carefully taken case history will assist in clarifying the diagnosis. As a matter of prophylaxis, adequate attention to anatomical anomalies will prevent the development of ileus. For example, large hernial openings should receive surgical attention before a segment of the gut has had an opportunity to become incarcerated and thereby to invite obstruction, ileus, and gangrene. On the other hand, there are no prophylactic measures which will be of assistance when the obstruction is due to peritoneal bands, adhesions, volvulus, or intussusception. Again, if I may recapitulate, it makes no difference whether the obstruction be due to mechanical or nervous origin, the symptoms and toxic exhibitions are the same and must receive prompt and energetic attention if a fatal outcome is to be averted.

For sake of clarity and system, it will be of assistance to subclassify the two important divisions of ileus or intestinal obstruction with which the surgeon comes in contact and which he is called upon to treat. (Incidentally, there is probably no realm of surgery where judgment, perception, and experience will be of more assistance, or the therapeutic rewards greater, than in this particular field.) Under mechanical causes may be listed:

(1) Herniation, which is the lodgment and incarceration of any segment or loop of the alimentary tract within any anatomical or artificial opening of the abdomen. (2) Volvulus is a twisting of the intestine upon its mesenteric axis to such an extent that the lumen is abolished and its circulation impaired. (3) Acute peritonitis is a condition wherein the serosa of the intestine is inflamed to such an extent that peristalsis ceases. (4) Neoplasms or new growths may, by their location outside the intestinal canal, encroach to such an extent as to abolish the lumen. (5) Ulcerations and subsequent stricture formation, if severe enough, are capable of obliterating the lumen of the intestine. Such conditions most frequently arise from tuberculous and syphilitic infections. (6) Intussusception is one of the commonest mechanical causes of obstruction. It is defined as a proximal loop of gut becoming invaginated or swallowed by the immediately following distal segment. (7) Foreign bodies, such as articles swallowed or gallstones, may occlude the

*Delivered before the Diet-Gastrointestinal-Internists Section of the Thirty-Ninth A.O.A. Convention, Cleveland, 1935.

intestinal lumen. (8) Neoplasms may originate within the gut and thereby occlude the lumen. An excellent example, and one with which we are all familiar, is that of cancer of the rectum. These are the main mechanical causes.

Paralytic or adynamic ileus may be brought about by:

(1) Lesions of the spinal cord (such as transverse myelitis) or trauma to the abdomen. (It has been repeatedly shown that severe blows and injuries to the abdominal wall or its contents are quite capable of initiating the condition.) (2) Infections—peritonitis, pneumonia and typhoid. (3) Circulatory obstructions —thrombosis or embolism wherein either the arterial or venous circulation to the intestine is abolished.

A third type will be mentioned only casually, i.e., dynamic ileus. In this instance the gut is in spasm; it contracts so vigorously that the lumen is thereby abolished. It is usually due to metallic poisons, chiefly lead.

A differential diagnosis of the various types is essential to intelligent treatment, i.e., mechanical ileus almost always requires surgery for its relief. (Occasionally an intussusception can be reduced by means of a barium enema.) In certain instances the paralytic type may also necessitate surgical intervention to facilitate treatment in urgent and terminal situations. The indications for the latter, however, are variable.

The symptomatology and pathology are identical excepting in those cases which are complicated further by the presence of strangulation and gangrene which of course increases the pain and discomfort and adds greatly to the gravity of the situation.

Because of the tremendous mortality which formerly attended the development of intestinal obstruction, a vast amount of research work has been directed toward the subject with the general result that both the incidence and mortality have been materially reduced. It is a well known fact, and has been verified by many different workers (we shall not attempt to refer to all of them by name), that once obstruction is established, certain changes occur in the chemistry of the duodenum and jejunum, terminating in the formation of a powerful toxin which, if untreated, rapidly brings about dissolution.

Draper[2] propounded the theory, which has since become recognized as a law, that the more proximal the obstruction is to the papilla of Vater the more quickly the patient dies. He arrived at this conclusion by experimenting upon dogs and other animals, creating a mechanical closure. The symptoms which developed were identical with those seen in the human. He observed that once the gut lumen is occluded, there results a damming back of material on the oral side, viz., gastric, biliary, pancreatic and intestinal secretions. Under such conditions bacteria rapidly multiply. The whole organism becomes extremely toxic.

Williams[3] discovered that the commonest offending organism to complicate the situation is the bacillus of Welch. The combination of enzymes, plus bacteria, plus distension, plus a toxin (the nature and character of which is not exactly known but which is certainly possessed of lethal qualities) completes the picture of intestinal obstruction. The same worker has shown that a valuable adjunct in the treatment of paralytic ileus is the administration of antitoxin derived from Welch's bacillus. In a series of 254 cases he was able to show a 19 per cent reduction in mortality.

Ellis[4] demonstrated that by injecting secretions from the duodenum of an experimental animal, suffering from ileus, intravenously into a well animal, the same symptom complex developed without in any manner occluding the lumen of the intestine. The experimental animal died within the same usual five-day period. By opening the jejunum, prior to the intravenous injection, this same worker discovered that the toxin appeared almost immediately. He further demonstrated that the toxin from the second animal could be transferred to still another and produce a paralytic ileus. Evidently the procedure could be carried out indefinitely. This proves conclusively that there is developed in the upper intestine (and without the assistance of bacterial action) a toxic substance which is absorbed as the gut becomes damaged by the excessive distention[5] eventuating in death. Bacteria are not necessary to its formation. Their presence, however, greatly increases the toxemia and speeds up the process. Obstructions in the colon or the lower small intestine produce the same symptoms and the same fatal termination, but are much slower in bringing about dissolution.

Sweet, Peet, and Hendricks[6] experimented upon dogs in the following manner: A segment of the upper small intestine was isolated, the ends inverted and left in place. The continuity of the intestinal tract was then reestablished by lateral anastomosis so that there was no occlusion anywhere. Paralytic ileus promptly developed and with a fatal result. The shorter the loop the more quickly the animal died. (Severe distension will occur more rapidly in a short segment than in a longer one.) Their researches in this particular demonstrate rather well that damage to the intestinal circulation is essential to absorption of the toxin. These same workers, experimenting with an isolated loop of the ileum, observed that toxic symptoms did not develop for a much longer time. (This verifies Draper's[2] findings and substantiates his law relating to high obstruction.) If, however, they added to the closed loop pancreatic ferment or a piece of pancreas, the animal promptly died.

Draper[2] felt that, inasmuch as the upper intestine is secretory and the lower intestine absorptive, the toxic symptoms might be due to the inability of the upper secretions to reach the lower intestine and thereby become neutralized. Accordingly he fed his experimental animals epithelium from the ileum and jejunum. They lived about twice as long, but eventually died.

By applying blood chemistry tests to the subject, Haden and Orr[7], in 1923, discovered that a sharp decrease in blood chlorides was one of the first chemical deviations, and unquestionably the most important. Concomitantly there was a rise in the CO_2 combining power which produced an alkalosis. All workers are in agreement that dehydration and loss of chlorides is early and marked. Haden and Orr[8] attempted to show that the fluid and chloride loss was due to the excessive vomiting which occurs in all cases of obstruction. They were unable to do so for the very good reason that by experimenting with rabbits (rabbits being unable to vomit) upon which a closed loop had been made, they observed that dehydration and chloride loss was as severe and prompt as was the case

with other experimental animals in which vomiting occurred. They further discovered that, if large quantities of normal saline solution were given during the first five days of obstruction, the animal would be kept alive as long as 28 days or until starvation terminated the experiment, even though food and fluids were withheld the remaining 23 days.

Suffice it to say that in all types of intestinal obstruction there is a toxin developed and elaborated in the upper intestine, the exact nature of which is unknown. But it is, however, extremely toxic and brings about a fatal termination. There is, in addition, a rapid loss of fluids and chlorides.

Treatment.—Our therapeutics will of necessity have a two-fold object, viz.: Surgical relief of the obstruction if it be of a mechanical nature. The same applies to paralytic ileus where distension is extreme and other measures fail. (2) Replacement of fluid and chloride loss.

Before entering upon the subject of surgical therapeutics, it might be well to mention the fact that meticulous gentleness in handling abdominal contents, both intestines and viscera, must be observed if the incidence of postoperative or traumatic ileus is to be kept at a minimum. I do not believe that speed in surgery carries the same reward as does the avoidance of needless handling and other traumatization of the abdominal contents, which will, of course, include the excessive and frequently unnecessary employment of drains. Stiff rubber tubes are particularly baneful in this respect. I, furthermore, do not believe it is good practice to employ harsh packing material to block the intestines out of the operative field. We regularly use dental rubber dams approximately two feet square. These rubber packs are kept on the operating tray in a normal salt solution. In blocking out the operative field these rubber dams are first applied to the intestines. Tail sponges and heavier material are applied above them and hold them in place. This prevents unnecessary scratching and abrading of the intestinal serosa by the harsh material of which sponges and towels are made. Since the use of these precautionary measures, our incidence of postoperative gas has been much lessened. After all, the usual so-called gas pains are nothing but an expression of an incipient and undeveloped ileus. They can, however, progress to a fully developed paralytic ileus.

If the ileus be due to a mechanical obstruction, surgical intervention will, of course, become necessary and, as before stated, the earlier the better. Most obstructions, if promptly diagnosed and energetically treated, will terminate favorably for the very good reason that early treatment will prevent undue damage to the intestinal wall and thereby anticipate the development of gangrene. In mechanical obstruction it must be remembered that dissolution is brought about in two ways: First, the toxin developed in the upper intestine may overwhelm the patient; second, by compression the circulation to the intestine is impaired, gangrene develops and death ensues as the result of this complication.

Preparation for this type of operation is no different from the preparation for others upon the abdomen. The lower intestine will be cleansed as well as possible with enemata. The stomach and upper intestines should be lavaged. This will carry away excessive secretion and make the administration of the anesthetic considerably easier. Before coming to surgery, the patient's chloride and water loss must receive appropriate attention. This may be accomplished either subcutaneously or intravenously. We prefer the latter route. We routinely replace the fluids with saline only. Following each 1000 cc., 25 to 50 cc. of glucose (50 per cent solution) is given intravenously. By administering the two fluids separately we have been able to avoid unpleasant reactions. This is of great importance inasmuch as large quantities must be given and very likely over a considerable period of time. (2000 to 5000 cc. each 24 hours.) A single sharp reaction might prove to be quite disastrous. Another factor of great importance in the prevention of reactions is the rate at which the fluid is allowed to flow. Seven and one-half cubic centimeters a minute has been found to be the optimum rate. If the fluid is made to enter the vein through a No. 24 needle with no more than 24 inches of hydrostatic pressure, this rate will be attained with minimal attention.

Selection of the anesthetic is of great importance. In children suffering from obstruction, ether will of necessity have to be employed. As in other types of surgery the general anesthetic of choice undoubtedly is a combination either of ether, nitrous oxide and oxygen, or ether, ethylene and oxygen. Patients with obstruction are extremely ill. The addition of an unfortunate anesthetic to the already overwhelmed organism may be quite enough to swing the balance unfavorably. We believe the anesthetic of choice unquestionably is spinal. We employ it routinely in all operations below the diaphragm. It does not offer the objections possessed by other anesthetics, inasmuch as it has no effect upon any tissue of the body. It therefore lends itself admirably to the conservation of vitality. This cannot be said of ether or chloroform. Given singly, ethylene or nitrous oxide will not produce the required relaxation. The addition of ether unquestionably invites pneumonia.

The abdomen is prepared in the usual manner, employing the solution of individual choice. The incision will be governed by the type of pathology likely to be encountered. If the operation be of an exploratory nature, undoubtedly the one of choice will be a right rectus, the center of which will be opposite the umbilicus. Before opening the peritoneum, the wound edges will be protected by moist pads clamped in place with towel clips. On opening the peritoneum, intestines immediately bulge into the wound. They are enormously distended. Their color will vary with the duration of time which has elapsed since the disease was first inaugurated. Early in the disease they will be a glistening pearly color; later on as damage occurs to the intestinal wall, they will become red and injected and appear quite inflamed. As capillary and venous stasis progresses, the color changes to a darker hue which eventually merges into the black and tells us unmistakably that gangrene has been imposed upon the picture. If the obstruction be due to an intussusception, it will most likely be discovered in the lower intestine (ileum), or in the neighborhood of the cecum. Traction will frequently straighten out the invagination. The longer the obstruction has endured, the greater the damage to the intestinal wall from the swelling and edema. Considerable judgment is required regarding the necessity of resection of damaged sections of intestine. David Cheever called attention

to the fact that by eviscerating the intestines into a rubber dam and applying heat by means of moist packs, frequently a badly damaged section after an hour or so of such treatment will improve its color and circulation materially. Such disposition of the intestines during operation is of material assistance in facilitating the mechanics of the operative procedure.

Gangrenous portions, of course, will have to be resected. It is absolutely necessary to go well into the normal field at both ends of the resection before making a lateral anastomosis. Frequently a Meckel's diverticulum is the exciting factor in ileocecal intussusception. The sac turns wrong side out and attempts to pass down the lumen of the intestine drawing the intestine along with it. In dealing with volvulus, if the situation has endured any length of time, great circulatory impairment may be encountered in the mesentery. Again, surgical perception and judgment of the amount of damage will be of material assistance in deciding the disposition of the situation. The same applies to hernias of all types. New growths usually require a different procedure. It is frequently necessary to make a temporary artificial opening in the intestine, thereby allowing the intestinal contents to escape above the obstruction. This is invariably true of cancer of the sigmoid or rectum where the obstruction is complete.

In dealing with paralytic ileus, in a good many instances, the situation may be handled satisfactorily and without surgery by the giving of copious quantities of fluid by mouth which are siphoned away by a small intranasal stomach or Lyons tube. Barney of Kansas City is a great advocate and champion of this particular method. He is thereby able to keep the upper intestine clear of the toxic substance which eventually kills the patient. By copious quantities he says he means just that. He states that he has given as much as four gallons of water to a patient in five hours. A decided refinement of this technic may be found in the employment of a Levine tube. The same objective is attained, but without worrying the patient too much with the concomitant vomiting, the fluid being siphoned away by hydrostatic pressure. If, after inaugurating this type of treatment plus fluids and glucose intravenously, the situation does not improve with promptness, it may be advisable to open the abdomen and do some form of enterostomy which may be accomplished in several ways. First, the standard type of enterostomy is performed by picking up the first greatly distended loop which presents, sewing it into the wound, and then making an artificial opening. Gas and foul smelling intestinal contents promptly escape, giving the patient relief. The chief objection to this type of operation is that it may require a secondary operation to close the artificial opening thus created. I personally employ the operation devised by the late Donald McCrae, wherein a No. 18 or 20 catheter is surgically inserted and installed within the lumen of a distended loop, usually of jejunum. The distal portion of the catheter is then brought out through a stab wound away from the incision. We are thus able to have the operative wound heal without interference of drainage. As an added convenience it is unnecessary to do a secondary operation to close the intestinal stoma. At the end of five or six days a fistulous tract will have been established. The catheter can then be withdrawn. After convalescence progresses and the intestine below opens up and recovers from its paralyzed condition, the fistula closes without assistance. After creating any high fistulous opening, attention must be paid to the skin immediately about the artificial opening. Digestive ferments, particularly that from the pancreas, will certainly erode the skin. As a matter of fact the pancreatic juice is quite capable of digesting it. The skin should be protected from the beginning with zinc oxide ointment. One-half of one per cent acetic acid will be found useful in neutralizing pancreatic ferment.

Postoperative treatment of these cases requires intelligence and diligence. The fluid and chloride level must be maintained. Through and through drainage must be established and continuous. The patient will be given quantities of water orally, a good deal of which escapes through the artificial opening, carrying with it and diluting toxic substances which are generated and have been described previously. If sedation is used, it is well to avoid the use of morphine since it delays the inauguration of intestinal peristalsis. Pain may be allayed by the employment of suppositories, either chloral, 5 grains or paraldehyde, 5 grains. The patient will be given no food until convalescence is well advanced.

SUMMARY

Intestinal obstruction, irrespective of its etiology, is invariably fatal unless promptly and intelligently treated.

Depending upon the etiology it may or may not require surgery for its relief. Diagnostic acumen and experience will dictate whether surgical intervention is necessary.

Once obstruction or ileus is established, there is elaborated in the upper intestine (duodenum and jejunum) a toxic substance which is invariably fatal, usually within a period of 5 days, unless measures are taken to relieve the obstruction and remove the toxin.

Bacteria are not necessary for the elaboration of the toxin. Their presence materially accelerates the fatal termination. The most common organism found in such cases is the bacillus of Welch.

Mechanical obstruction invariably requires surgery for its relief.

Dehydration and chloride loss are early and marked, with or without vomiting. These losses are of serious import and must be adequately compensated for if therapy of any character is to be successful.

REFERENCES

1. Dorland, W. A. Newman: The American Illustrated Medical Dictionary. Ed. 16. W. B. Saunders Company, Philadelphia, 1932.

2. Draper, J. W.: Studies in Intestinal Obstruction; with a Report of Feeding Heterologous Jejunal and Ileac Cells to a Human Being. Jour. Am. Med. Assn., 1911, 57:1338-1343.

3. Williams, C. B. and others: Importance of Toxemia Due to Anaerobic Organisms in Intestinal Obstruction and Peritonitis. Brit. Jour. Surg., 1926 (Oct.), 14:295-322.

4. Ellis, J. W.: The Cause of Death in High Intestinal Obstruction. Ann. Surg., 1922 (Apr.), 75:429-448.

5. Gatch, W. D., Trusler, H. M. and Ayers, K. D.: Acute Intestinal Obstruction. Am. Jour. Med. Sc., 1927 (May), 173:649-667.

6. Sweet, J. E., Peet, M. M. and Hendricks, B. M.: High Intestinal Stasis. Ann. Surg., 1916 (June), 63:720-728.

7. Haden, R. L. and Orr, T. G.: Effect of Inorganic Salts on the Chemical Changes in Blood of Dog After Obstruction of Duodenum. Jour. Exper. Med., 1924 (Feb.), 39:321-330.

8. Haden, R. L. and Orr, T. G.: Experimental High Intestinal Obstruction in Monkey. Jour. Exper. Med., 1925 (Jan.), 41:107-111.

1550 Lincoln Street.

An Apparatus for the Application of Continuous Negative Pressure for Drainage of Body Cavities

EDWARD G. DREW, D.O., D.Sc., F.A.C.O.S.
and
ARTHUR M. FLACK, A.B., D.O.
Philadelphia

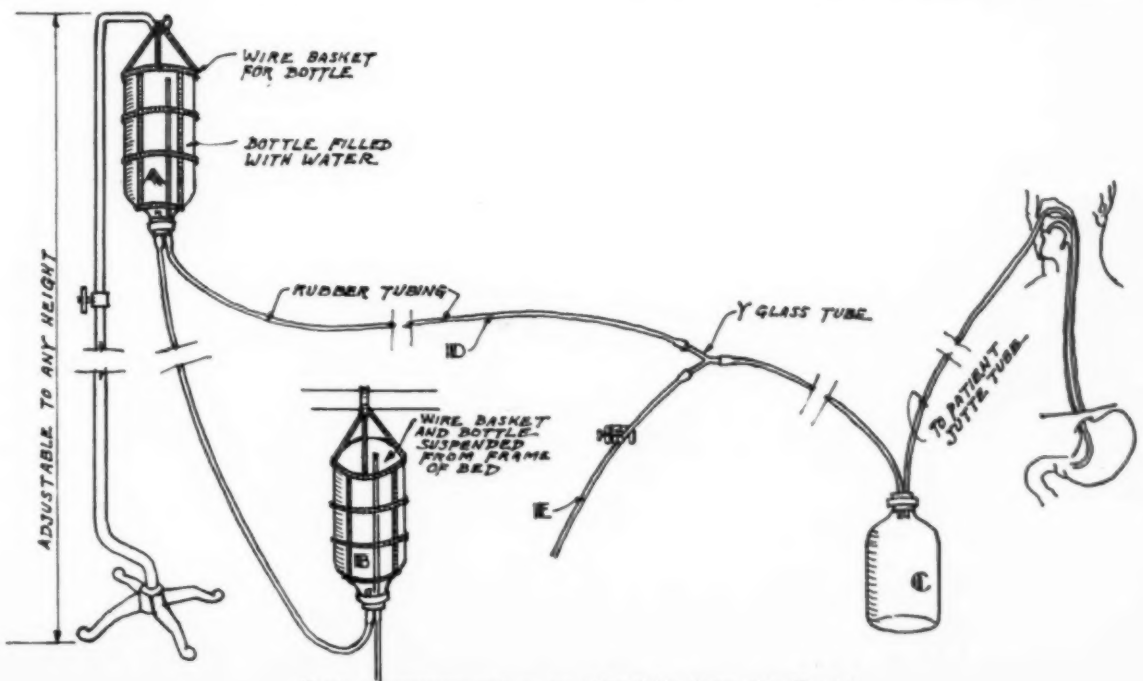
The following is a description of an apparatus for the application of continuous negative pressure for decompression or drainage of the gastrointestinal tract and other body cavities. It is a modification of the original apparatus developed by O. H. Wangensteen*, M.D., of the Department of Surgery of the University of Minnesota and is used with great success at present in the Osteopathic Hospital of Philadelphia.

It consists of two one gallon jugs (see diagram) marked "A" and "B" and a smaller bottle, about one-half gallon capacity, marked "C"; three two-holed rubber stoppers; a glass Y tube, and the necessary amount of rubber tubing to connect the various parts of the apparatus. Straight glass tubing is used through the corks in the lengths illustrated, although, if it is available, stainless steel seamless tubing is preferable, chiefly because of the danger of breakage of glass during handling of the apparatus while in storage. In conjunction with the apparatus there is used a Jutte tube, which is of the size of a Rehfuss tube without the olive, or a Levine catheter about size 16 F. This tube is moistened with ice water (immersed) to which a few crystals of potassium permanganate are added for antisepsis. It is then introduced through the nares, pharynx, and esophagus into the stomach. If the Jutte tube is used, it will come provided with a wire which may be run through its lumen. This allows for easier introduction because the tube is rather thin walled and bends easily.

If used, this wire should be lubricated with sterile glycerin so that it may be withdrawn from the tube after it has been introduced. After introduction of the tube, its free end is attached to the patient's face with an adhesive strip and the outlet is connected to the tube leading to bottle "C."

Bottle "A" is then filled with water and is suspended by means of adhesive strapping, or a wire basket if available, to the top of a Kelly pole. Bottle "B" is suspended in like manner from the spring or frame at the side of the hospital bed. Bottles "A" and "B" are connected with each other by means of a suitable length of rubber tubing connected to both *short* tubes that pass through their corks. These bottles *must* be kept inverted at all times for the apparatus to work properly. From the long glass or metal tube that passes through the stopper of bottle "A" a piece of rubber tubing "D" passes to one arm of a glass Y tube. A similar piece of rubber tubing "E" is provided for the other arm of the Y tube and this end clamped at any place along its course with an ordinary stop-cock, hemostat, or Kelly clamp. The directional end of the Y tube is then connected to

*Wangensteen, O. H., and Paine, J. R.: Nasal Catheter Suction-Syphonage: Its Uses and the Technic of Its Employment. Minnesota Med., 1933 (Feb.) 16:96-100; also Wangensteen, O. H.: Therapeutic Considerations in the Management of Acute Intestinal Obstruction: the Technic of Enterostomy and a Further Account of Decompression by the Employment of Suction-Syphonage by Nasal Catheter. Arch. Surg., 1933 (June) 26:933-961.



Sketch of apparatus used at the Philadelphia Osteopathic Hospital.

bottle "C," a collecting bottle, as shown, and the apparatus is ready for operation. As the water flows from bottle "A" to bottle "B," it produces a decrease in the pressure at the top of the bottle "A," which negative pressure is transmitted through the long tube of the same bottle to the Y tube and thence to the collecting bottle and to the Jutte tube, producing aspiration continuously of the contents, both liquid and gaseous, of the stomach and duodenum. When the water from bottle "A" has emptied into the lower bottle "B," the apparatus stops functioning. At this time the positions of the bottles are reversed; that is, bottle "B" is placed at the top of the Kelly pole and bottle "A" lowered to the side of the bed. The free end of tubing "E" from the Y tube is then connected to the long glass or metal tube in bottle "B" and the clamp removed. The other tubing "D" running to bottle "A," is disconnected from the long glass or metal tube after it is clamped along its course, the clamp already having been removed from the tubing "E" leading to bottle "B." The tube "D" must be disconnected from bottle "A" to prevent an increase in pressure above the water flowing in and stoppage of the action. Releasing the long tube's outlet allows the air to escape. Negative pressure is maintained in this manner while the bottles are being changed, and suction present is not lost.

While the tube is in the patient's stomach, fluids are given freely by mouth, and may be given as soon as the patient recovers from anesthesia sufficiently to swallow consciously. The Jutte tube, incidentally, is frequently introduced into the stomach on the operating table, without any difficulty, while the patient is under anesthesia. This is done especially in cases where there has been an unusual amount of handling of the bowel, in cases where distention postoperatively is anticipated or where acute dilatation of the stomach might be expected. The free use of fluids allows the physician to determine whether the apparatus is working properly. It prevents to a great degree the exasperating postoperative thirst, and dilutes the contents of the stomach sufficiently to prevent stoppage of the Jutte tube with stomach and biliary mucus and other residue. Our sole difficulty in this institution with the working of this apparatus has been due to clogging of the small calibered Jutte tube with mucus or retained food particles, but when fluids have been administered freely by mouth we have not encountered this trouble.

The fluid intake should be measured accurately. This amount taken by mouth (fluids taken by other routes not considered) is compared frequently with the output via the apparatus as found in the collecting bottle "C." As long as the output exceeds the intake, fluids are not being absorbed from the gastrointestinal tract. Intake of fluids, even in small amounts, without the apparatus would result in nausea, emesis, dilatation, and increased toxicity, if they were administered at this time of functional disturbance to the tract.

As soon as the fluid intake by mouth is exactly equal to, or greater than, the output, as found in the collecting bottle, the gastrointestinal tract is beginning to absorb fluid and the apparatus may be discontinued for periods of one hour at a time. Should the functional activity of the bowel persist, the Jutte tube may then be withdrawn. This is usually found to occur on the second or third day postoperatively, if the apparatus has been used from the time of surgery.

The necessary fluid quota of the body with the apparatus in place and functioning, is supplied by parenteral routes. Physiologic saline solution, with or without 5 per cent glucose, is administered twice daily in 500 cc. or 750 cc. doses by venoclysis or hypodermoclysis. This practice, with the above solutions, has been found satisfactory in this institution although other solutions may be administered, if desired, in the same manner.

The apparatus has been used successfully in all types of cases in this institution. Postoperative morbidity has been materially reduced and the convalescence shortened. Its most remarkable results have been noted in those cases of postoperative distention which occur two to three days following abdominal surgery. Such distention is then reduced within a few hours time and the patient made comfortable. Its use in perforative lesions of the stomach or duodenum, in gastroenterostomies, in cholecystectomies, in intestinal resections, in nephrectomies and prostatectomies. Even in cases of Porro-cesarean section, where the shock and nervous upset to the bowel cause a high mortality, its use has resulted in decreased morbidity and mortality.

It is being used in place of surgery in selected cases of acute intestinal obstruction, the Jutte tube being introduced well into the duodenum or jejunum, as it is found necessary. In such cases, a rectal tube may be connected to the same apparatus with another collecting bottle, in an effort to collapse the intestinal tract from both sides of the obstruction and hence to prevent toxic absorption.

In our use of this procedure, there has been some slight nausea in some cases, but on no occasion has there been any vomiting as is usually expected after abdominal surgery. The patient complains only of incisional pain and soreness, and the occurrence of "gas pain" has been a rarity. In most instances the patient may begin to complain about the presence of the tube in the nose and throat after a day or so. This may usually be ignored, but, if necessary, in an excitable individual we have found the use of 5 per cent cocaine solution sprayed with an atomizer in the nose and throat sufficient to allay the distress. As the tube does not pass through the fauces and does not come in contact with the tonsillar pillars, there is no gagging at any time, and the introduction is much less unpleasant from the patient's standpoint.

The apparatus, as described, is easily and inexpensively assembled from the supplies found on hand in any institution.

Incidentally, this apparatus is self-regulating in that it stops itself once the stomach is emptied of fluid and gas and automatically begins to function again when this organ begins to accumulate ingested or secreted substances. Irrigation of the stomach, after the manner of gastric lavage, may be accomplished by the introduction into the circuit through an additional Y tube of solutions from an irrigating bottle, the suction tube being clamped off distally while the irrigating solutions are run in.

We trust that the Wangensteen apparatus will have wide-spread use when its comfort-giving power and even its life-saving possibilities in certain cases are appreciated.

48th and Spruce Streets

Roentgen Ray Diagnosis of Chronic Appendicitis and Its Relationship to Gastric and Duodenal Dysfunction

CHARLES J. KARIBO, D.O.
St. Joseph, Mo.

If compilers of statistics are correct in their conclusions that the mortality from appendicitis is on the increase, while at the same time approximately 40 per cent of all appendectomies are done unnecessarily, the fault must lie in the diagnosis of this disease. This paper does not take up acute appendicitis, but is confined to the chronic form only.

In considering the diagnostic means in appendicitis, our attention is attracted automatically first to roentgenology, by which the appendix can be visualized or at least its location definitely determined. Other abnormal findings in the adjacent viscera may be evaluated, and a differential diagnosis made.

Most roentgenologists agree that for an appendiceal survey to be of any importance, a definite routine of examination must be strictly adhered to, considering that a normal appendix may fill and empty several times throughout a serial study.

The procedure as followed by the majority of roentgenologists is as follows: Sixteen ounces of barium sulphate is administered orally and the stomach and duodenal function observed. A four hour study is made to determine whether premature gastric evacuation is present, as well as to make a detailed study of the small bowel below the duodenum. Six hour observation is made to determine whether there is latent cecal filling, at which period the stomach should be thoroughly evacuated, with barium filling the terminal ileum, cecum, and ascending colon. Any inflammatory or congenital abnormalities of the ileum and cecum should be demonstrated at this time, such as presence of Jackson's membrane, Lane's kinks of the terminal ileum, ileocecal adhesions, and Meckel's diverticulum. At this observation the normal appendix should be visualized. Ten hour observations are made in cases of latent ileac function, the normal ileum being completely evacuated at this period. Routine examinations are made at 24 and 48 hours, and every 24 hours thereafter until the appendix, cecum, and entire colonic tract are evacuated.

As was previously stated, a normal appendix is first visualized at 6 hour examination and should evacuate with the cecum at approximately 48 hours, and at the longest, 72 hours. However, it must not be overlooked that an appendix cannot normally evacuate its contents in cases of cecal stasis and this finding is extremely important in the diagnosis and prognosis of a suspected chronic appendicitis. Barium enema may be used at the conclusion of the oral study, but should never be depended upon alone for diagnosis of appendiceal dysfunction.

Throughout the entire procedure, an effort is made to demonstrate the appendix as well as to investigate thoroughly the cecum, entire colon, and sigmoid. The normal appendix fills freely at the 6 hour period, showing regularity in the intraluminal filling, and is freely mobile with the cecum. There is no point tenderness to pressure. The appendix evacuates its barium contents at or before the 48 hour observation, in the average normal case. The cecum and the entire colon present no reflex evidence of hyperirritability and are evacuated at that period.

The roentgen manifestations of the pathologic appendix are point tenderness to pressure, irregularity in the intraluminal filling, due frequently to intraluminal stenoses or periappendiceal adhesions, ileocecal stasis, spasm of the cecocolon, usually with hypermotility, and gastric, cholecystic and duodenal dysfunctions which will be considered later in this paper.

The two most important and reliable findings are point tenderness and latent appendiceal function. Many roentgenologists consider the finding of point tenderness sufficient to warrant a diagnosis of chronic appendicitis, although others adhere to the opinion that this finding, coupled with dysfunction of this organ must be demonstrated to confirm the diagnosis. The other altered findings, as just enumerated, are usually considered as only confirmatory evidence of pathology, rather than pathognomonic signs.

In cases presenting subjective symptoms of pain in the right lower abdominal quadrant, definite differentiation of point tenderness can be made by the exact location of the appendix, cecum, and terminal ileum, and the differentiation of point tenderness of these structures from that of right tubal, ovarian, ureteral, renal (in cases of prolapsus of the right kidney), and enteric tenderness. Infrequently, we obtain symptoms of pain in the midepigastric region, as a result of pressure over the appendix. Considering that most abdominal lesions produce definite high midepigastric pain and distress on pressure, it is very important to determine whether the location of the pain is over the region of the solar plexus, which it more frequently is, or over the stomach, pancreas, or upper portion of the small bowel. The classical finding in appendiceal reflex is the elicitation of a zone of hyperesthesia over the supragastric region, but not over the gastric shadow. This group of findings alone offers an invaluable service to the internist and clinician, as well as the surgeon, and expedites surgical procedure in case this is subsequently indicated.

Nonfilling of the appendiceal lumen with persistent tenderness over the capital portion of the cecum and pericecal tissues strongly suggests intraluminal occlusion, probably as a result of intra- or periappendiceal adhesions, fecaliths, etc., and should be given the same consideration as faulty evacuation of this organ, especially if this finding persists at repeated examinations.

Not infrequently the diagnostic problem is greatly complicated by apparently coexisting les-

ions, like gastric or duodenal ulcer, gallstones, urinary calculi, etc. Where such findings are not associated with appendicular roentgen signs, the diagnosis is relatively simple, and the differential diagnostic value of the roentgen ray is impressive. In instances, however, where these lesions are associated with appendiceal roentgen findings, the diagnostic situation becomes extremely puzzling for the roentgenologist.

Considering the differential diagnosis of colonic lesions that may simulate chronic appendicitis, we are faced with numerous congenital as well as acquired abnormalities, such as tuberculosis of the cecum and colonic tract, luetic lesions, hyper- and hypomobilities of the cecum and ascending colon, diverticulosis of the cecocolon and pericolonic adhesions. Roentgenologists and surgeons are devoting an increasing amount of attention to mesenteric alterations as being an etiological factor in the production of chronic appendicitis, and a responsible factor in failure of amelioration of symptoms following appendectomies. Hypermobility of the hepatic flexure due to elongation of the ligaments of Huschke and Haller, the supporting mesentary of the hepatic flexure, are given consideration in the postoperative care by proper supportive appliances, for the relief of the patient's distressing symptoms. Hypermobility of the cecum, or cecum mobile, due to elongated parietocolic and mesenterocolic folds, or hypomobile or fixed cecum, as a result of congenital shortening of the mesentary folds, or pericecal adhesions of an inflammatory origin, may be corrected surgically. However, there is a diversity of opinion of surgeons as to the necessity of caring for these changes in a surgical manner. The majority agree that they should be given postoperative attention in case of the persistence of the subjective symptoms. On the other hand, many surgeons consider these peritoneal alterations as surgical only in cases of intestinal obstruction of mechanical origin, or those sufficiently marked as to potentially produce volvulus or intussusception. These findings are commonly made in patients who previously have had appendectomies for chronic appendiceal disease, without relief from their symptoms. Excessive mobility of the right colon is responsible for a wide variety of symtoms simulating appendicitis and ranging from right lower quadrant pain to clinical syndromes resembling ulcer, gallbladder disease, and even cancer. Latent cecocolonic function as a result of irritable colon, visceroptosis, pericolonic adhesions, neoplasms, etc., may simulate chronic appendicitis, and are often considered the etiological factors in many cases. It is evident that the normalization of cecal function should be considered primarily in this type of case, in outlining the therapeutic program, rather than first considering appendectomy, inasmuch as it is impossible for the appendix to maintain normal function with impairment of cecal or colonic motility.

In considering the reflex manifestation of a pathologic appendix, we are confronted with a multiplicity of changes, both in the cecocolon as well as in the gastric, duodenal, and cholecystic functions. As was previously stated, hypertonicity of the colon with hypermotility, particularly of the descending portion, is an almost constant finding in chronic appendicitis. In addition there is irritable gastric function with hypertonicity and a finding of either premature or latent gastric evacuation depending upon the severity of the irritability and the progression of the case.

Changes in the duodenum marked by irritability are manifested frequently in advanced appendiceal disease. Many cases previously diagnosed as duodenal ulcer from the roentgenological and clinical findings are now recognized as simple duodenitis of reflex nature, chiefly appendiceal in origin. This phenomenon is also caused frequently by mechanical drag of the mesentary over the second portion of the duodenum, producing intermittent and transient duodenal stasis. These changes also are frequently seen as a result of visceroptosis, low cecum, intestinal stasis, and neoplastic disease. It is extremely important to make this differentiation, inasmuch as the therapeutic programs are so vitally different in each type of involvement. Incidentally, roentgen ray examination is the only diagnostic procedure that will clarify the situation.

Cholecystic studies by means of opaque dye, administered either orally or intravenously, may be supplemented in the examination, if there are conflicting cholecystic symptoms.

In gastric and duodenal ulcers and especially in gallbladder lesions, not infrequently coexisting appendiceal tenderness is observed. Moynihan's statement that "Most gastric ulcers are found in the appendix," is not so far off considering the number of cases submitting to roentgen ray examination with clinical diagnosis of gastric and duodenal ulcer and in which no evidence of such a lesion is found to be present, but instead, a pathologic appendix.

CONCLUSIONS

1. Roentgenology is the best diagnostic method in chronic appendicitis.

2. Its main value lies in the differential diagnosis, because the roentgen ray enables us to recognize much better than any other examination method the most important lesions which are apt to simulate the clinical picture of appendicitis.

3. Evidence in regard to the appendix as furnished by the roentgenogram is of value to both surgeon and clinician, to the surgeon for the planning of operative procedure, and to the clinician for intelligent evaluation of the patient's symptoms.

Roentgenological diagnosis in chronic appendicitis is a procedure which should be highly esteemed and eagerly sought by the physician and surgeon for the benefit of the patient, and through this close cooperation our efforts in lowering the mortality rate and eliminating the unnecessary removal of normal appendices might be rewarded.

REFERENCES

Buckstein, J.: Migratory Cecum. Am. Jour. Roentgenol., 1934 (Aug.) 32:171-178.

Felsen, J.: Pathological Appendix. Am. Jour. Roentgenol., 1934 (March.) 31:340-345.

Friedenwald, J. and Feldman, M.: Chronic Intermittent Duodenal Stasis. Am. Jour. Roentgenol., 1934 (Aug.) 32:161-166.

Kirklin, B. R.: Duodenitis and Its Roentgenologic Characteristics. Am. Jour. Roentgenol., 1934 (Mar.) 31:581-587.

Percy, N. M. and Beelin, D. S.: An Analysis of 1,000 Consecutive Examinations of the Stomach and Duodenum from the Clinical, Roentgenological, and Surgical Viewpoints. Am. Jour. Roentgenol., 1934 (Aug.) 32:179-188.

Rendicle, R. A. and Ehrenpreis, B.: Appendix, Morphologically Considered. Am. Jour. Roentgenol., 1933 (Dec.) 30-791-796.

Weber, H. M.: Roentgen Diagnosis of Diseases of the Colon; Mercy Hospital and Sanatorium Evalution of Methods. Am. Jour. Roentgenol., 1934 (May) 31:607-613.

Production of Osteopathic Educational Films*

RALPH W. RICE, D.O.
Los Angeles

Visualization of the structures and mechanics of the normal and of the lesioned joint is an essential prerequisite to intelligent osteopathic treatment. Since visualization is so difficult, any method that can make better memory images of structures in their normal and their abnormal relationship will make possible a clearer understanding of osteopathic problems and their solution and a better organization of concepts. The cinema offers much in this important field. It is often difficult in writing to clothe things in form and body to make them interesting, but it is different with pictures. They make concrete those things often so difficult to capture in the abstract. We can look straight through them, as through windows into the heart of things. So the visualization of osteopathic mechanics by means of the motion picture screen can serve as an efficient means of forwarding a better understanding of the bony lesion.

It is logical to assume that films depicting osteopathic mechanics must have as their objective the lucid explanation and the skillful and practical application of osteopathic principles. This assumption presumes the first essential, which is a thorough understanding of osteopathy in theory and practice attained through exhaustive study, research, and clinical experience. It is here that osteopathic generalities must give way to osteopathic particulars.

STEPS IN THE PRODUCTION OF OSTEOPATHIC FILMS

General Rules.—To establish a foundation for such a study, the normal mechanics of the joint under consideration should first be carefully illustrated along with the joint anatomy. The diagnostic clinical landmarks of the normal should be emphasized as should be those characteristics that will be pertinent to the further development of the study. This not only refreshes the memory of the observer, but also will serve as a working basis for the consideration of the abnormal.

The normal now being firmly established, some frequently encountered lesion of the joint is best used for study. The mechanics of the lesion is shown and the changes in the anatomical relationships in the joint pointed out. This contrasts the normal with the abnormal and makes clear the diagnosis of the latter.

The problem is now clearly developed with the need of concise, specific osteopathic correction apparent. The corrective movements are now shown, and must disclose step by step how and why each is taken and what is accomplished. Finally, after each movement has been executed, evidence of lesion correction must be forthcoming.

These are rules applicable to every film designed to illustrate the mechanics of osteopathic treatment. They are rigid but necessary and make the production of such educational films a tremendous undertaking.

The Scenario.—The preparation of the study for the screen means writing the scenario, which is a script telling the story the film will depict. It is analogous to the writing of a book. The scenario for a film is written and rewritten many times, each rewrite being an improvement in expression, continuity and sequence, the changes modifying it here and enhancing it there, while all the time the whole is acquiring greater clarity and better proportion. A film study is not like a book, where one at will can turn back and reread a portion of it. It therefore must be made so understandable that one may follow it through from beginning to end, through scene after scene not missing the objective.

The Shooting Script.—When the scenario is in its final preparation, the shooting script is developed. This is a separate manuscript which gives explicit directions as to how to shoot each scene. Relationship of lights and camera to the subject, position of subject at the opening of each scene, movements of subject, use of pointers, captions, markings, and all other necessary data including the closing of the scene are essential directions recorded in the shooting script. All scenes throughout the whole film are planned in this manner and, at the time of shooting, followed carefully. Captions are the small cards observed in some scenes upon which is printed some word or sentence for explanatory purposes.

Titles.—The 16 mm. talking films are a reality, but their production and later projection require such expensive and cumbersome equipment that we must yet confine ourselves to silent pictures. Titles are therefore inserted in the picture to make the story complete. For clarity and for economy they must be concise and short. Their preparation is of major importance, for they must convey the exact meanings intended. They are made up in conjunction with the scenario and shooting script. They complement the various scenes.

Photography.—We must not confuse the relative importance of the various elements that go to make up such a production. Photography, important as it is, must accept the same relative position that printing does to a manuscript. Good photography, like good printing, is always desirable, and considerable equipment, such as special lights, tripods, lenses, and a good camera, are essential and some technical skill in their use necessary. But good photography cannot make up for a poorly constructed educational production.

After the preparation of the scenario, the titles, and the shooting script, the actual shooting is next in order. Trial shots to test for distance, relative position, background, exposure, and angles of light are made. Elaborate detailed records are made of each trial shot, so when a final selection is made, all details for shooting are available. The shooting requires careful attention to every photographic requirement as failure to observe a single one means failure for all. A small percentage of retakes are necessary due to errors, but with careful attention to the preparation of the shooting script, these are reduced to a minimum.

The tempo of these films is generally slower than those designed for pleasure and relaxation. As previously stated, each scene is an important link in the

*Delivered before the General Sessions of the Thirty-Ninth A.O.A. Convention, Cleveland, 1935.

chain, and to hurry a scene or allow too rapid motion in it would tend toward confusion. The motion and length of scene should be consistent with clarity.

Cutting.—When all scenes are shot and the titles made, then the film is cut or assembled. Flaws in the film, mistakes in the scenes, and too much footage are all corrected and the titles inserted between the proper scenes.

Should the assembled film satisfy critical approval, the film is then copied and the copy used for exhibition purposes while the original is put in a safe place to be preserved for future copying.

CONCLUSION

We have shown that in the production of osteopathic educational films, it is necessary to have a thorough understanding of the mechanics of the normal and lesioned joint, a carefully prepared scenario, serviceable equipment and good photography, and careful cutting, assembling, and copying of the completed study.

We feel that visual methods can serve as a medium for osteopathic instruction, increasing the efficacy of teaching, and intensifying interest and zeal, as well as serving as a means for the recording of the work of men of scholarly mien, initiative, and originality whose adventuresome spirits drive them ahead through uncharted fields of research. At the same time they push back our own osteopathic horizons and lift us to better and better things.

Visual education can do much in attaining this end.

578 North Berendo.

The Cranial Vertebrae

Part II

CHARLOTTE WEAVER, D.O.
Akron, Ohio

XIX. Argument.—To recapitulate, from notochordal plate notochord and mesodermal plate are differentiated.

From notochordal border of mesodermal plate sclerotome is differentiated.

Notochord ensheaths itself in membrana elastica interna, or, in English, in the notochordal sheath.

Sclerotome approaches notochord from either side and gradually surrounds ventral and ventrolateral surfaces of notochord, to meet ventrally in mesial sagittal plane. Also, a few days later, it gradually rises dorsad along the lateral walls of the notochord and continues dorsad along the lateral surface of the neural canal. At the most dorsal border of the lateral surface of the neural canal it arches over the neural canal to meet, dorsally, in the mesial sagittal plane.

The sclerotome now becomes known as the vertebral bow. That portion of the vertebral bow which arches ventrad is called the hypochordal bow. That portion of the vertebral bow which arches dorsad is called the neural arch. These same developments occur in the cephalic portion of the embryo homologically.

As misinterpreted, these cephalic homologues of spinal axial development are called the basilar plate, and the prechordal plate. According to this nomenclature the basilar plate gives rise to the "parachordal cartilage." The prechordal plate is postincidental to the occurrence of the "trabeculae cranii." But, in reality, the basilar plate is the forward extension of the notochord, the notochordal sheath (membrana elastica interna) and neural arch; but not of the hypochordal bow. The prechordal plate is the anterior extension of the hypochordal bow.

The existing confusion concerning the differential identity of the basilar plate and the prechordal plate was caused by the fact that in the embryo segmentation begins at the point in the paraxial mesoderm which is in a plane with that area in the yolk colloid lying in the intervening space between the ectodermal plate and the endodermal plate. Here the most caudal portion of that part of the endodermal plate, which is known as the parachordal plate, comes to underlap the most cephalic portion of the notochordal plate, and, apparently, proceeds in both axial directions from there, the cephalad differentiations regularly maintaining the separate integrity of the hypochordal bow, the dorsad differentiations bringing about, in reality, a dedifferentiation of the hypochordal bow, in that it fuses with, and becomes lost in, the vertebral bodies.

This, the process of dedifferentiation by way of fusion of early morphological parts, as axiation proceeds caudad, will be seen to be the regular method. Note the progressive fusions occurring in the sacrum, in the coccyx, even within the coccygeal segments of the neural tube itself. The human embryo progressively differentiates cephalad—in the caudad direction, progressive dedifferentiation is the established order. Therefore, in order competently to proceed in the further observation and interpretation of human evolvement, the spotlight of intelligent inquiry must be focused unremittingly upon that portion of the embryo which marks the dividing line between progressive cephalad differentiation and progressive caudad dedifferentiation. Priority is claimed by the author for this observation.

A further priority is believed claimable in that it is here first cited that another confusion has existed in the interchange of the terms "somite" and "segment." If a somite could not be found, it has been supposed that a segment did not exist. Had segmentation been recognized early as primarily the process of formation of that structure which has come to be termed "intersegmental septum" then, I believe, the confusion could not have arisen.

With regard to the septum, Keith refers to W. D. Primrose[1] of Glasgow, Scotland, as follows:

He regards the cavities of the primitive segments as the representatives of a primitive water-vascular system—such a system having served as a skeleton in a pre-vertebrate stage of evolution. In vertebrates a new skeleton has evolved out of the septa between the segments. The muscle of each segment passes from the septum in front to the septum behind. The replacement of a septal by a cartilaginous and then by a bony skeleton represents later stages in the evolution of the vertebrate type.

Another priority is believed claimable in the mention of the fact that the pituitary body, in the light of these studies, is found to develop between two intersegmental septa. It should here be mentioned that as these studies progress in presentation the part which the concomitantly evolving pituitary, or hypophysis, plays in the establishment and maintenance of that ratio between progressive cephalad differentiation and progressive caudad dedifferentiation, which is found as a preformed and constant condition in the evolvement of the human embryo, will be dealt with in detail. It is believed that, here also, priority of observation is claimable in the matter of this exact ratio and, of the interrelationship of the establishment and maintenance of the ratio and the related concomitant evolvement of the pituitary hypophyseal structure.

To progress: if Primrose[1] is right, and if Sajous[2] is correct, when he says, "One of the functions I have ascribed to the pituitary body of man is none other than this, namely: to detect any toxic substance that may be present in the blood, the organism's oxygen carrier and, therefore, its respiratory *fluid*, after the water-vascular system has become a blood-vascular system," then another point in our favor emerges, because at the time of the onset of segmentation this area plays the strategic part. This being the case, the next article in the series should be of considerable interest. At present, however, it is necessary to resume the subject of segmentation in its relation to the development of the vertebral bodies.

A study of segmentation in relation to the vertebral bodies is essentially a study of the incidence of true osseous tissue. Osseous tissue is important not alone to the science of osteopathy, but also, and in an even more fundamental manner, to the entire vertebrate phylum.

The invertebrates failed in their efforts at brain building. Wood-Jones and Porteus[3] have described colorfully the possible structural angle of that failure:

In addition to that portion of the nervous system which is formed from a gutter down the front of the body and which remains ventral to the intestine, such invertebrates as possess adequate sense organs situated upon the dorsal aspect of the head set aside another field for the reception and coordination of their stimuli. This anterior field creates that portion of the nervous system which is dorsal and anterior to the intestine. It forms the pre-oral and the supra-oesophageal ganglion or collection of nerve cells, which may be said to constitute the cephalic part of the invertebrate's brain. But the posterior part of its brain is post-oral or infra-oesophageal. The oesophagus, therefore, in its passage from the mouth to the stomach, has to pass through the midst of the nerve masses that are aggregating to form a brain. Now here is a dilemma; the animal has built its brain around its oesophagus. What is to happen if its brain grows bigger, as brains must, if progress is to be maintained? If the brain continues to grow bigger, the oesophagus stands in danger of being compressed in the midst of the growing brain. As Gaskell has said: "Progress on these lines must result in a crisis owing to the inevitable squeezing out of the food-channel by the increasing nerve mass." And it would seem that the crisis actually came about, for "in the highest scorpion and spider-like animals the brain-mass has so grown round and compressed the food tube that nothing but fluid pabulum can pass through into the stomach: the whole group have become blood-suckers." To become a bloodsucker is to become a failure. Phylogenetic senility comes with the specialization in blood-sucking. Phylogenetic death is sure to follow. Here, then, is an end to the progress in brain building among the invertebrates. Faced with the awful problem of the alternatives of intellectual advance accompanied by the certainty of starvation, and intellectual stagnation accompanied by the ability of enjoying a good square meal, they must perforce elect the latter if they are to live.

The authors add: "The invertebrates made a fatal mistake when they started to build their brains around the oesophagus."

But why did they begin to build their brains around their oesophagi? Sajous,[4] although not intentionally, writes the answer*:

The prevailing view is that the pituitary body is a secreting gland. In truth, this conception has never been carefully answered by its sponsors—a deplorable fact. No greater fallacy could be vouched for than the belief that because an extract of a given organ gives rise to physiological effects, that organ is a ductless gland. Indeed, on that plea the pituitary should now be granted *four* internal secretions, while the most active extract is derived from the neural or posterior lobe, which, as emphasized by Biedl, Swale Vincent, myself and others long ago, is not a glandular organ at all. All these extracts act pharmacologically but *not* as internal secretions.

In the first volume I contended that the anterior lobe of this organ contains sensory cells which had for their purpose to detect the presence of toxic substances in the blood. Considerable evidence can also be submitted to show that these sensory structures could, in case of need, and through the intermediary of the adrenals and thyroid particularly, enhance the functional activity of the defensive functions. We have likewise seen that these organs are dominated by the sympathetic system, and that I regard the posterior or neural lobe of the pituitary as main neucleus or center (previously unlocated) of that system.

That such a protective function actually exists in man is further sustained by the fact that its presence is clearly discernible throughout the entire phylogenetic scale, at least down to and including the mollusks. "Near the base of the stem of each ctenidium [gill combs]," says Ray Lankester[5] "is a patch of epithelium of the body wall, peculiarly modified and supplied with a special nerve ganglion. This is Spengel's olfactory organ, which *tests* the *respiratory fluid*, and is persistent in its position and nerve-supply throughout the group Mollusca." To this group of cells Lankester gave the

1. Primrose, W. D.: Jour. Anat., 1921, lv, 119. Referred to by Sir Arthur Keith: Human Embryology and Morphology. Ed. 5, William Wood and Company, Baltimore, 1935, p. 51.

2. Sajous, Charles E. de M.: The Internal Secretions and the Principles of Medicine. Vol. II. Ed. 10. F. A. Davis Company, Philadelphia, 1921, p. 965.

3. Wood-Jones, Frederic and Porteus, Stanley: The Matrix of the Mind. University Press Association, University of Hawaii, T. H., January, 1928, p. 29.

4. Sajous: Ibid. pp. 960-962.

5. Lankester, Ray: "Mollusca." Encyclo. Brit., Ed. 9. vol. xvi, p. 636. Referred to by Sajous, ibid.

*The fact is not overlooked that few of the medical writers on the subject of pituitary function subscribe to these conclusions of Sajous. But all this is to be taken up in a later article. [In the March JOURNAL the word "gland" was placed in error after the word "pituitary" in the reference note 14 at the bottom of page 330.—Editor]

name 'osphradium.' Parker and Haswell[6] more specifically define the functions of this organ, viz., "to test the *purity* of the water entering by the respiratory current."

Ascending from the Invertebrates to the Vertebrates, we find this same organ in the lowest of fishes, the lancelet or amphioxus. In this lowly animal, the water, which enters the mouth and traverses the entire body, also subserves the respiratory function (Lankester).[7] "The mouth of Amphioxus would seem to be well guarded against the intrusion of noxious substances," writes Willey,[8] "everything entering the mouth has to pass through a vestibule richly provided with sensitive epithelial cells."

Lloyd Andriezen[9] likewise refers to sensory structures in amphioxus constituting "a nervous organ," which is "sensitive to the *quality* of the water which passes over it," and remarks that "this is no isolated phenomenon, for we find a striking analogy in the osphradial organ and ganglion of Mollusca, which is situated at the entry of the mantle or respiratory chamber, and serves to *test* the quality of the water which passes over the respiratory organ." We thus have clear evidence to the effect that these lower forms, at least, are endowed with a specific apparatus, which, though primitive, has for its purpose to protect the *oxygen-bearing stream,* and, through the latter, the body at large.

A feature of great importance in this connection, however, is the evident presence of two structures fulfilling correlated functions. While Lankester refers to "a patch of epithelium . . . *supplied* with a special *nerve* and *ganglion,*" located at the base of the gill-combs in Mollusks, he includes all these structures in Spengel's "olfactory" test-organ. The importance of this lies in the fact that we have in this dual organ a counterpart of the pituitary body, which is composed, as is well known, of two lobes, one epithelial and the other neural. As far back as 1881 Julin[10] showed that in Ascidians, or sea-squirts, which belong to a subclass below amphioxus (the Urochorda), the *sub*neural gland, which underlies a ganglion embedded in the mantle of these animals (and which ganglion represents the general center of their nervous system), was similar in structure and relations to, and a counterpart of, the pituitary body of the Vertebrates. Lloyd Andriezen not only confirmed this fact more recently, but as the result of comprehensive histological study of the subject in ammocoetes (larval petromyzon) and lower forms, affirmed the previously supposed two-fold function of this organ. "Even in the highest mammals and *man,*" says this investigator, "it has a two-fold structure and represents a double organ."

This establishes the point that the invertebrate built its brain around its intake pipe in order to protect its organism against the ingestion of lethal substances, whether of liquid, gaseous, or solid particles, and that he built it there because that was the only place which the limitations of the simplicity of his organism afforded.

The structural limitations of the invertebrate organism caused the self-limitation of its attempts at brain building. It remains here to be pointed out why the vertebrate phylum has succeeded, and, how it has succeeded.

A study of central nervous evolvement in relation to true osseous tissue brings out the fact that in the process of arrival of the selected energies of nature at that stage of their integration which is called human consciousness, there is an absolute necessity of a development and of a maintenance of normal osseous structure; that, in fact, the difference in the ability of a phylum to build in true osseous tissue, i.e., calcium phosphate, in replacement of the invertebrate calcium carbonate, marks the difference between the failure of a phylum to achieve a central nervous system and its ability so to do. Absolute priority of observation is here claimed.

A paragraph or two here will suffice to indicate the unbroken continuity which exists between the phylology of the invertebrates and that of the vertebrate phylum. Uncertainty as to priority of observation of this exact sequence is admitted, but yet it is suggested that priority exists, here, also.

As indicated, the continuity between invertebrate organic life and vertebrate organic life exists in the achievement of that replacement mechanism whereby calcium carbonate becomes replaced by calcium phosphate.

In the earlier paragraphs of this study, reference was made to the fact that in the Placentalia (amniate mammalian placentalian vertebrate) the membranous embryo develops from the beginning as three concentric closed sacs, respectively surrounding three concentric closed cavities, and, that each concentric closed cavity encloses its particular, specifically fabricated, colloid. It is within this structural arrangement of three spatially controlled biochemical formulae, the successfully progressive interrelationships of which are to bring about the success of the attempts of organic nature continuously to evolve, that she has condensed the entire results of the experience which she has achieved through millions of years of the method of trial and error. Within this structural arrangement lie the complete possibilities of that success which is cardinal in the ability of organic nature to survive. Here, then, we can focus our hopeful attention.

A physical organism which would not self-limit its own intellectual progress must, perforce, be an organism which has evolved the possibility of a stable intrinsic long-distance control of prehension, adaptability, defense, aggression, and the like; in other words, an organism with a central nervous system.

Now the biochemical ingredients, out of which a central nervous structure can be evolved, are unstable in light. Bone transmits no great amount of light, the vibratory frequencies of which are less than the frequencies of the x-ray. Evidently the necessary stability-instability ratio of central nervous biochemical phosphates is maintained by, or in, those frequencies which do penetrate bone in the exact amounts which, found normally at the earth's surface, filter through the osseous endoskeleton. Priority of observation here is claimed. Calcium carbonate does not afford the filtration essentials for the establishment and maintenance of this stability-instability ratio: it would seem that true osseous tissue, i.e., calcium phosphate, alone can effect this.

And so the problem of the vertebrate became the problem of evolving a bony housing of calcium phosphate for its central nervous system which, when evolved, would not as effectually strangle the future evolutional possibilities of its host as does that structural arrangement in which the brain circumscribes the oesophagus.

6. Parker and Haswell: "Manual of Zoology." 1900, p. 277. Referred to by Sajous, ibid.
7. Lankester, Ray: Encyclo. Brit., Ed. 9. vol. xiv. p. 258. Referred to by Sajous, ibid.
8. Willey: "Amphioxus and the Ancestry of the Vertebrates." 1894, p. 19. Referred to by Sajous, ibid.
9. Andriezen, Lloyd: Brit. Med. Jour., January 13, 1894. Referred to by Sajous, ibid.
10. Julin: "Recherches sur L'organization des ascidies simples." Archives de biol., 1881, vol. ii. pp. 59, 111. Referred to by Sajous, ibid.

The invertebrate body arrangement afforded one other seemingly insurmountable difficulty. Invertebrate biochemical economy could not evolve true bone tissue. It could evolve only calcium carbonate. Evidently here, also, a structural arrangement whereby that unstable element, phosphate, could be protected for evolutional purposes, needed to be achieved. Bone must be built. The amnion is the phosphate organ. It had to be achieved. It had to be achieved first, before progress could go uninterruptedly forward. Between the vertebrate amnion and the invertebrate calcium carbonate a structure—the distinguishing structure of the vertebrates—was achieved, the osseous endoskeleton. After it was evolved, a good central nervous system could come into being.

The generic term "invertebrates" includes the classes "Les Vers, Les Arthropodes, (Les deux embranchements des Vers et des Arthropodes out été longtemps réunis sous le nom d'Annelés), Les Mollusques, Les Echinoderms, Les Coelentérés, Les Spongiaires, Les Protozoaires."[11]

The vertebrates include "Les Mammiféres, Les Oiseaux, Les Reptiles, Les Batraciens ou Amphibiens, et Les Poissons."[12]

The crustacae, building their calcium carbonate exoskeletons, represent the zenith of the attempt of organic nature to remain invertebrate and yet to continue along the long upward evolutionary grade.

Not until the successful evagination of the body cavity by a prebone forming notochordal structure, in other words, not until some invertebrate form successfully carried its calcium carbonate determinant inside its body, did organic nature overcome its handicap, and in so doing that form, which is called generically the vertebrate form, was born.

Phyletically a vertebrate form is a successfully evolved in- (or, to put it differently, pre-) vertebrate form. In the Placentalia—the highest of the vertebrate forms—this ontogenetic review of prevertebrate phylogeny is still to be seen. Up to the period where the evagination of the anterior floor of the cleft which is called the "primitive streak" is achieved by the proliferating cells of the "dorsal lip," man is an invertebrate organism.

A study of some of the more humble, but not too humble, members of the vertebrates—the ovipera—aids in acquiring an understanding of the manner in which the human embryo avoids failure and achieves the necessary metamorphosis.

The egg is the perfect invertebrate form. No portion of this organism has advanced so far in specialization along any divergent line that progress along the main line of evolution is "stymied." An untrammeled possibility of evolutional continuity, alone, is its only specialization. Yet even among eggs, the shell bearing egg was not the perfect evolutional form. Within its protecting shell of calcium carbonate a vertebrate organism indeed is evolved. But the organism evolved within the shell bearing egg is not the perfect vertebrate form. Not until the placenta replaced the shell did the evolvement of the human form take place.

11. Sajcus: Ibid.
12. Daguillion, August: "Anatomie et Physiologie, Animales."

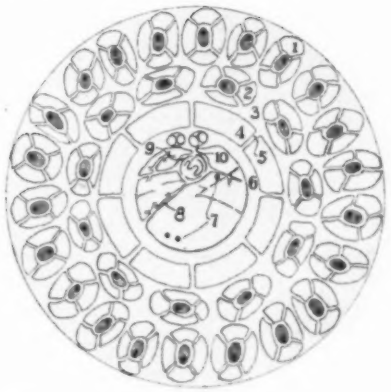


Fig. 4

The structures in **Fig. 4** are identified as follows: (1) In the shell-forming ovipera the cells of this layer take up calcium carbonate from the maternal tissues during the passage of the egg organism through the oviduct and deposit it within their own cytoplasm thus forming a rigid, completely circumscribing, exoskeleton. (2) The cells of this layer fabricate nutrient, which are, therefore, protein, granules which the cells of the layer deposit into the space, (3), which surrounds the zona radiata. (4) Zona radiata. (5) The canaliculi, i.e., channels through which the nutrient granules fabricated by 2 pass into the space, 6, which lies between the zona radiata and the zygote. (7) Pigment granules which form a cap-like zone of greater or less depth over the upper surface of the zygote. (8) Canaliculi leading from space 6, which surrounds the zygote, into space 9, which surrounds the cuticular membrane of the nucleus, 10.

In the shell-forming ovipera, the deposit of calcium carbonate is laid in by cells of the outer layer of the egg organism, as it passes through the oviduct, from the secretions of the secretory cells of the duct during the process of ovulation.[13]

Fig. 4 is diagrammatic of the general scheme of the egg organism. It represents the zygote, the first cell the origin of which results from the union of the ovum and the spermatozoon, surrounded by its organized structures at the stage of development at which the organism has arrived at the time when it passes outward through the oviduct.

In the human, the egg is non-hard-shell forming, hence the egg organism arrives at the uterus as we see it in the diagram (p. 378). Here the cells of the outer layer (small figure 1) take up their gift of maternally prepared organic calcium in carbon combination from the secretion offered by the secretory cells of the uterine mucosa, and, instead of depositing their gift in the form of a rigid exoskeleton, further fabricate it for use in the evolvement of an endoskeletal structure which shall be of a higher evolutional order than is that of the organism evolved within the limitations of a completely circumscribing rigid shell.

Fig. 1 (reprinted from March JOURNAL) represents in diagrammatic form this stage of the human embryo. In it all structures have remained plastic. It is enlightening to compare the component parts of this invertebrate stage of the human embryo with homologous parts of the hard-shelled vertebrate.

The cells of the trophoblastic layer take up organic calcium from the maternal mucous secretions; fabricate it with carbon of its own cells; and secrete its fabrication into space 2 (Fig. 1.).

The content of the trophoblastic cavity (space 2) is a colloid in which that form of organic cal-

13. Jenkinson, J. W.: Vertebrate Embryology. Oxford University Press, Humphrey Milford, London, 1925.

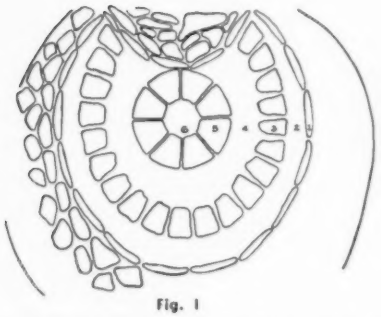


Fig. 1

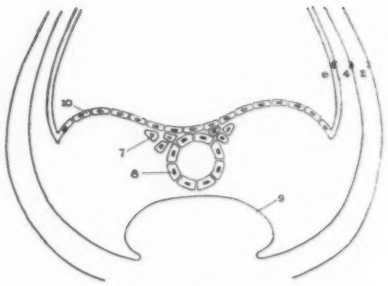


Fig. 2

These schematic drawings represent early stages in the growth of the embryo. The structures numbered one to six inclusive in **Figs. 1** and **2** represent (1) the trophoblast, (2) trophoblastic cavity, (3) yolk membrane or sac, (4) yolk cavity, (5) the amniotic sac, (6) amniotic cavity. In **Fig. 2** the structure marked (7) represents paraxial mesoderm, (8) the notochord, (9) and (10) respectively the lower and upper layers of the embryonic plate.

cium in combination with carbon, which the human embryo will further fabricate, abounds in a plasm, which plasm is eventually rejected by the evolving organism.

The cells of the yolk membrane (3) which take up the prepared offering of calcium as fabricated by 1 for its use, and, in conjunction with the substance of their own cellular content, fabricate a new biochemical offering which they secrete within the contents of space 4, the yolk cavity. The particles of this colloid, which abounds within 4, the yolk cavity, are not taken up by the cells of 5, the amnion.

The cells of the amnion have remained in contact with the little blood lakes which the cells over that portion of the zygote which is pigmented, have formed in connection with the maternal tissues. They have taken their plasmatic life directly from the maternal human plasma. They will not be modified by the biochemically prepared offering of prevertebrate calcium which abounds within the yolk sac. They will remain plastic. They are fabricating a new colloid, i.e., that which lies, contained within the circumscribing amniotic membrane, in the amniotic cavity (6).

In section I (March JOURNAL) of this study we have watched the formation of the embryonic plate by the cells of the most dependent portion of the amniotic sac, and the cells of the most dependent portion of the yolk sac.

In the same section we have seen that this upper and lower leaf of the double-leafed embryonic plate, although approaching each other, yet remained separated by a goodly distance, that the space which separated them was a portion of the yolk cavity, and that within that separating space there existed yolk colloid.

Sections III to VI inclusive, projected the sequences in the formation of the notochordal plate.

It can now be seen in what manner ancestral invertebrate nature dealt with her lethal necessity. Fig. 2 shows her answer. Success was achieved by projecting a plate of cells, which were derived from the amnion, forth into the yolk colloid, where, deprived of contact with amniotic colloid, they are bathed in yolk colloid. These are true amnion cells. So deprived, and so bathed, they adapt themselves to the yolk colloid. This yolk colloid contains the complete possibilities of subvertebrate organic evolvement. The amnion colloid contains the complete possibilities of vertebrate continuation of the process which subvertebrate nature has brought to this highest biochemical and structural subvertebrate possibility.

The comparative study of amnion building through the whole vertebrate series cannot here be dealt with. It constitutes an evolutional drama in itself. Through millions of years of uninterrupted creativity an amnion, closed from its very inception from the contents of the yolk sac, and receiving its sustenance not from the secretory cells of the uterine mucosa, but from the maternal blood stream direct, was achieved.

The colloid formed by these cells of this amnion and enclosed from the beginning within the membrane which is formed by the cells which give it genesis—this colloid is the true human colloid, as completely differentiated from all earlier phyletic colloid formations.

The notochordal plate of cells, born of the amnion and isolated within yolk colloid, adapt themselves to life within yolk, i.e., prevertebrate, colloid.

The step which prevertebrate economy could not encompass was that of giving genesis to true osseous tissue. It could generate calcium carbonate. The notochord is evolved from the notochordal plate, under the influence of yolk, subvertebrate, colloid. It becomes the mediator between the impossible demands of evolution and the sustained efforts of ancestral subvertebrate nature. But it does not build osseous tissue. It brings about the building of osseous tissue.

The notochord, as it is differentiated from the notochordal plate, is built of cells, ancestrally amniotic, which have become adapted to life within yolk colloid, exclusive of any contact with their ancestral amniotic colloid. But the notochordal cells arrange themselves in such manner as to form a hollow tube which, opening onto the attenuated floor of the cleft which is called the "primitive streak," causes it still further to attenuate and then to disappear over the microscopic area which is outlined by the advancing lumen of the notochordal tube. Thus a continuity between the cavity of the amnion and the lumen of the notochord is achieved. So that an organ dominated by the influence of the amnion is built up within the yolk colloid which can take

up from the yolk colloid that for which it was built and to which it has become adapted, and, under the influence of the amniotic colloid which now enters freely the lumen of the notochord and traverses its channel, fabricate it for vertebrate usage, which step is achieved in the immediate modification of the cells of the notochord, which now become vacuolated, secretory cells, and we shall see that it is from these vertebrate cells of the notochord modified by contact with invertebrate colloid that the centra of all vertebrae and the nuclei pulposi of all intervertebral discs are formed. In a later article we shall attempt to prove that it is the most anterior of these vertebrate cells of the notochord as modified by their contact with invertebrate colloid, which form the posterior one-third of the posterior or neural lobe of the pituitary-hypophyseal structure. Priority of observation is here claimable.

Just at the stage when the modification of the notochordal cells is accomplished they secrete a substance which, when it comes in contact with the yolk colloid upon their outer surfaces, forms a protecting membrane, known as the membrana elastica interna, or, notochordal sheath, which is uninterrupted in its surface continuity and surrounds completely the notochord. Colloid does not pass through animal membrane.[14]

These two structures, the notochord and the notochordal sheath, form, now, a new structure, open, alone to the influence of the amniotic colloid (note that it is within the neural lobe of the hypophyseal body that we hope to demonstrate the presence of the most anterior cells of this structure) by way of the opening into the lumen of the notochord, which opening is the homologue of the neurenteric canal of lower forms, and the blastopore of still lower forms. In the human there is no neurenteric canal.[15] For all primates this opening should be found to be as is herein described. It never opens into the archenteron, which, in the human, would be the yolk colloid, consequently it does not form a neurenteric canal, but, instead, the opening between the amnion and the central canal of the notochord comes into existence.

The formation of the mesodermal plate has been reviewed in section X (March JOURNAL) of this article.

The cells of the mesodermal plate are, ancestrally, amniotic cells. They become deprived, permanently, of all contact with their ancestral cells and with their ancestral colloid. They take up their expatriated existence within yolk colloid. They are not dominated in their further fabrication of the biochemical offerings of the yolk colloid by the amniotic colloid as are the cells of the notochord. They have but their amniotic heritage on the one hand, and, on the other, their environmental yolk colloid. Out of this combination vertebrate connective tissues are evolved.

The final step in the evolvement of osseous tissue is essentially the penetration of periosteal tissue into a prepared, non-osseous, matrix. In the process of this penetration periosteal cells deposit their fabrication. As successfully deposited, this fabrication of the periosteal cells is found to be that biochemical calcium phosphate which is peculiar to osseous tissue.

What is periosteal tissue? A vertebrate connective tissue; not an invertebrate connective tissue.

Osseous tissue is built by vertebrate connective tissue, derivatives, as guided and controlled by the notochord.[15]

14. Colloid: Definition from W. A. Newman Dorland's "The American Illustrated Medical Dictionary." Ed. 11. W. B. Saunders Company, Philadelphia, 1922.

15. Priority of observation claimed.

Mayflower Hotel, Suite 839, Main and State Sts.

The New York Convention

Break all records—That's what the convention to be held in New York in July will do in practically every one of its phases.

A convention of superlatives — That's just what every indication promises the experienced observer.

An outstanding program is being painstakingly perfected by George W. Riley and his chairmen of section programs, and speakers have been selected in all parts of the country.

A scientific exhibit surpassing the much-acclaimed one of last year is in the making — a source of instruction and information to layman and physician alike.

The commercial exhibit will be by far the greatest high quality display of its kind ever presented at an osteopathic convention.

Delightful entertainment for physicians and their families and guests is being planned.

Weighty matters will be considered and far-reaching decisions made in the legislature of the Association. Therefore it is highly important that divisional societies select and send their best informed and most statesmanlike representatives to the House of Delegates. Alertness and foresight now mean much to the future of osteopathy. Plan to come to New York next July for a week of education, recreation, fellowship.

THE JOURNAL OF THE
AMERICAN OSTEOPATHIC ASSOCIATION

Published monthly by the American Osteopathic Association

Publication Office, 1140 Lake Street, Oak Park, Ill.
Editorial Office, 430 N. Michigan Ave., Chicago, Ill.
Address all communications to the Chicago Office
Cable address: "Amerosteo"

RAY G. HULBURT, D.O. ..... Editor
R. E. DUFFELL, D.O. ..... Assistant Editor
CLAYTON N. CLARK, D.O. ..... Business Manager

EXECUTIVE COMMITTEE

PRESIDENT ..... T. R. THORBURN, New York City
PAST PRESIDENT ..... G. J. CONLEY, Kansas City, Mo.
FIRST VICE PRESIDENT ..... J. E. ROGERS, Oshkosh, Wis.
CHAIRMAN PROFESSIONAL AFFAIRS ..... C. H. MORRIS, Chicago
CHAIRMAN PUBLIC AFFAIRS ..... E. A. WARD, Saginaw, Mich.
EXECUTIVE SECRETARY ..... R. C. McCAUGHAN, Chicago

Subscription - - - - - - - - - Five dollars a year in advance

Vol. 35 April, 1936 No. 8

OSTEOPATHIC RESEARCH IMPERATIVE—IV.

The fourth annual Child Health Conference at Kansas City will be in full swing as this number of THE JOURNAL comes from the press. The effects of both good and bad body mechanics will be evident in the children, and once more the examiners will tell themselves and each other that postural studies and the correction of errors are particularly important in children, since the effects of good and bad posture not only assert themselves immediately but are continued throughout adult life. These facts bring to mind again the need for such intensive osteopathic research as we have been urging in recent numbers of THE JOURNAL. All the studies we have made in all the decades we have worked have not been enough to provide even adequate groundwork for a good start.

Louisa Burns has pointed the way for extensive and revolutionary studies relating to the health of infants and children. Her research into the effects on their young of lumbar lesions in male and female rabbits has shown that the effects of bad body mechanics are not confined to one generation, and moreover that such lesions put their mark on the very stuff of life itself. She has shown that if we wait to correct the lesion until the child is born—even until it is conceived—we are too late. Not only does its effect carry over from infant to adult in the same body, but also from adult to infant in the germ plasm.

The Osteopathic Child Study Association also has made a very necessary preliminary survey in its study of 1,000 cases of childhood injuries, and is going on with studies of birth trauma. This one field of birth injuries is enough to provide opportunity (we use the word advisedly) for a lifetime of study on the part of some of our workers.

We have long made clinical observations. More or less gross laboratory observations on animals have proved much. Now the time has come for delicate, specific, scientific study of the patients themselves, to determine why we help them and how we can better serve them.

Let us begin with birth injuries. In such spastic deformities as those of Little's disease our practice is far ahead of our theory. Other physicians have practically no therapy for such conditions, yet we almost invariably effect improvement. Why?

We do not fully know why. We do not know, scientifically, why a child with an acute disease under osteopathic care, is relaxed, has lower temperature, in large measure escapes complications, while under nonosteopathic care the tension of his tissues runs the gamut from sleeplessness to convulsions, and he runs a high temperature. The scarlet fever patients of osteopathic physicians rarely develop nephritis; measles patients, otitis media; diphtheria patients, paralysis; and so on.

A knowledge of these tremendously significant facts is universal among us. Our allopathic neighbors wonderingly realize them, and in private conversation with us often comment upon them. Other M.D.'s twist the facts to make it appear that osteopathic physicians do not care for cases of a serious nature.

In the face of all this, we must ask ourselves the question: How and why are the body's active immunological processes aroused under osteopathic treatment? Its answer must furnish us with irresistible incentive.

Doubtless there are many lines which this much needed study can take. Blood analysis has reached such a stage that it will tell us much. The results to osteopathy—the results to humanity—would be immeasurable if we would take one hundred cases of a given acute infectious disease and study the blood of every patient every half hour. Such a study made during the course of an acute condition would give us a basis for understanding in greater detail the effects of our treatment procedures and probably provide incontrovertible proof (aside from the clinical proof which has satisfied us too long) that our therapy is superior to any other. The Schilling and the sedimentation tests and other necessary blood studies, supplemented by the electrocardiograph, and the "polygraph," all in relation to osteopathic manipulative treatment, would provide laboratory proofs of the things that every osteopathic physician knows from clinical experience. At the same time, such findings would go a long way toward furnishing the scientific explanations for which the House of Lords Committee asked in vain so recently and which we in this country today need sadly and, sooner than most of us realize, may need desperately.

Aside from the necessities of legal and legislative contingencies we should not forget that when we know *why* we have produced results, in the treatment of infants and children, we can work immeasurably more effectively and we can extend our influence as far as we will. We will have a

means of public education incomparably more potent than any we have today. Every word of all this is true as applied to our treatment not only of children, but of the mature and of the aged as well.

Let us have individual members of the profession studying their cases a hundredfold more carefully than at present. Let us have schools and clinics studying their cases as they never have done before. Let us arouse the interest of local study groups, each in one phase of the illimitable problem that confronts us in our efforts to establish osteopathy in its rightful place in the world of science.

R. C. Mc. AND R. G. H.

VISUAL EDUCATION IN OSTEOPATHY

Osteopathy is so new a science that we have not yet given much time to developing visual education. The Old Doctor always demonstrated his talks, using pencil drawings or bones, as there was no better way at that time. But in these days of motion pictures—what would it not mean to our profession and to the world to show a film demonstrating the Old Doctor's technic!

No other science has the same opportunity to demonstrate with the motion picture film, with microscopic slides, and with stereopticon slides, the theory of "cause and effect," as does osteopathy. I hope to see visual education in osteopathy developed to encompass the teaching in our colleges of histology and pathology by this new method. Slides can be made which demonstrate the effect of the bony lesion on specific parts of the body. Other slides can be made showing the normal tissue on one end, and on the other end the pathology produced in the tissues by a specific bony lesion. This would arouse the interest of the students in the osteopathic concept of disease and give them a better idea of the subject, also arousing their enthusiasm for research. Some such slides are available now. Dr. Burns has some that can be duplicated and can easily be made.

The teaching of osteopathic technic can be augmented by films showing the lesion and the mechanics used in their correction.

In a case of poliomyelitis, a film made at the onset of the disease, followed at intervals by others demonstrating the method of osteopathic treatment and the final recovery, would aid in convincing the world of what we are able to do for victims of this disease.

Motion picture films sometimes show a lesion that has not been disclosed by palpation. In connection with the x-ray, it can be made a source of protection in legal cases where there is a tendency on the part of the patient to malinger. In short, the uses of the motion picture film are too numerous to mention here.

It seems to me that the A. T. Still Osteopathic Foundation and Research Institute could devote much time with profitable results to developing the scientific motion picture film. If sponsored by the Institute, the films could be more uniform. Credit should be given to the workers, but no advertising of individuals permitted. The scientific motion picture film could be made available to persons in isolated districts, thus keeping all members of the profession in touch with the progress being made, also keeping alive their enthusiasm for their profession.

In 1930 some workers connected with the A. T. Still Research Institute made a motion picture film demonstrating the reaction on the viscera of steady pressure, and of intermittent pressure, on certain parts of the spine.

As Chairman of the Committee on Visual Education, Ralph W. Rice, who has an article on motion pictures in this number of THE JOURNAL, is emphasizing also the importance of lantern slides in lecture work, in a field distinct from that of the motion picture. He is using them himself, and urging others to do likewise.

We hear so much these days about selling osteopathy to the laity. We must first sell it to the members of our own profession. If we have adequate education and enough enthusiasm and confidence, we can cure disease. And that is the best way to sell osteopathy.

GEORGIA A. STEUNENBERG.

REFERRED PAIN IN LOW BACK PATHOLOGY

Many investigators have attempted to identify the exact structures or tissues in the low back responsible for referred pain to the various regions of the pelvis and lower extremities, but unfortunately their identifications have not been uniform and furthermore explanations have not fitted in many instances either the clinical symptoms of patients or the anatomical distribution of nerves.

For instance, it has been a common tendency of physicians to group all pain which originates in the sacroiliac and sacrolumbar articulations and their accessory ligaments as "sciatica." Reference to an anatomy text will show that the sciatic nerve proper is distributed to the posterior and lateral aspects of the leg and foot and does not supply the regions, such as the gluteal, the sacral, the posterior and lateral femoral, the inguinal and the genital, which are most commonly affected by the condition which goes by this name.

In an effort to bring order out of confusion in this problem of referred pain, two Californian physicians* made a study of 506 cases of low back disability and the regions of referred pain in these cases. The regions were classified as follows, the percentage given representing the incidence of pain in any given region as compared with the total incidence of pain in all regions: (1) Buttock (and intergluteal triangle) 43 per cent; (2) Thigh and/or Knee (posterior and/or lateral) 26 per cent; (3) Leg (posterior and/or lateral) and/or dorsolateral foot and/or last four toes, 28 per cent; (4) Intergluteal triangle only, 8 per cent; (5) Groin and/or

*Pitkin, Horace C. and Pheasant, Homer C.: Sacrarthrogenetic Telalgia. Jour. Bone and Joint Surg., 1936 (Jan.) 28:111-129.

genitalia, 6 per cent; (6) Thigh and/or knee (anterior and/or medial) 4 per cent; (7) Foot (dorsal and/or medial) and/or great toe, 3 per cent; (8) Leg (anterior and/or medial), 0 per cent; (9) Foot (sole), 0 per cent.

Early in their investigations they decided that one of the outstanding sources of confusion in the literature was inaccurate nomenclature. They suggested the term "sacrarthrogenetic telalgia" as descriptive of the typical syndrome of pain associated with lesions of the sacroiliac and sacrolumbar articulations and their accessory ligaments.

The next step was to seek the origin of sacrarthrogenetic telalgia. In reviewing the literature, regarding this type of referred pain, the second source of confusion among authors was revealed, and this as a direct result of the first, i.e., inaccurate nomenclature. Many of the authors studied explain the referred pain on the basis of direct pressure or other irritating stimuli applied to the sciatic nerve, the sacral plexus, or individual nerve roots from which it is formed. This pressure, they state, may arise as a result of spasm of the piriformis muscle, inflammation extending from the sacroiliac joint, or spondylitic, spondylo-arthritic and spondylolisthetic narrowing of the intervertebral foramina. In answer to this, our investigators have shown in their classification that "the regions most frequently affected by sacrarthrogenetic telalgia are supplied by peripheral nerves derived from both the anterior and posterior divisions of every spinal nerve from the first lumbar segment to the third sacral segment. To account for the referred pain on the basis of direct pressure, one must predicate either an ascending or a reflex irritation . . ." They contend, therefore, that "sacrarthrogenetic telalgia is not the result of compression or irritation of the trunks of peripheral nerves."

Continuing their search of the literature, they found that some authors explain sacrarthrogenetic telalgia on the segmental basis, but the wide divergence of opinion as to the localization of the dermatomic regions of the body makes such explanations unreliable and is a third source of confusion.

Head wrote, "Where a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility to which the stimulus was actually applied." In investigating the literature on the "parts of low sensibility"—the lumbosacral and sacroiliac joints—our investigators found the fourth and greatest source of confusion. Many anatomy texts ignore the innervation to the joints entirely. The investigators thereupon made a dissection of four cadavers to determine the exact innervation. They found that each articulation has a "close central connection," the lumbosacral joints by means of the posterior divisions of the fourth and fifth lumbar nerves, and the sacroiliac joints by means of the posterior divisions of the fifth lumbar and first and second sacral nerves. Telalgia in the posterior dermatomes of the sacral region (part of high sensibility) can be caused, therefore, by intra-articular lesions of the lumbosacral and sacroiliac joints (parts of low sensibility).

However, this does not take care of referred pain in the major portion of the buttock, in the lateral femoral region, in the anterior femoral region, or in the groin. The ligaments of the sacroiliac and lumbosacral joints were next considered. In studying the ligaments the following fact was recognized: that a tendon phylogenetically represents a portion of the original muscle converted into connective tissue, and that it is innervated by twigs of the nerves that ramify within the substance of that muscle. On this basis the sacrotuberous and long posterior sacroiliac ligaments may be considered as direct continuations of the tendinous origin of the semitendinosus and the long head of the biceps femoris muscles. The common aponeurotic tendons of the sacrospinalis and gluteus maximus muscles also blend with these ligaments.

Tracing other muscles in this manner and knowing the nerves which ramify within these muscles, it has been possible for these investigators to state that "pain may be referred from the iliolumbar ligaments to all of the five lumbar and the first three sacral posterior dermatomes, as well as to the first three lumbar anterior dermatomes; from the sacrolumbar and anterior sacroiliac ligaments to the second and third lumbar anterior dermatomes; from the posterior sacroiliac and sacroischial ligaments to all of the five lumbar and the first three sacral posterior dermatomes, as well as to the fifth lumbar and the first three (or four) sacral anterior dermatomes." None of these structures has a close central connection with the fourth lumbar anterior dermatome in the anterior crural region, but it may be noted in the classification of regions of telalgia that none of the patients in this series complained of pain in this region.

To osteopathic physicians these careful clinical and anatomical investigations of referred pain have special significance. They are well worth studying at length for the evidence brought forth of the effects of intra-articular lesions. Of even greater importance are the effects of irritation to ligaments attached to the sacroiliac and lumbosacral joints. Osteopathic physicians have long recognized the mechanics of the sacrotuberous ligament for instance in the common osteopathic sacral lesions, formerly termed "innominate lesions."

The article referred to herein is one of a series of four to appear in *The Journal of Bone and Joint Surgery*. The other subjects to be considered under the title "Sacrarthrogenetic Telalgia" are sacral mobility, alternating scoliosis, diagnosis and treatment. We await with interest the publication of these articles.—R. E. D.

Special Article

WHERE OUR STUDENTS COME FROM

ASA WILLARD, D.O.
Missoula, Mont.

The 1935 attendance of students in osteopathic colleges, on the basis of states from which they come, is here presented. This listing, each year, includes only the students taking the regular four-year professional course, not considering preosteopathic, special or postgraduate students. The students in these classifications would furnish no basis for comparison as to our numerical increase which, along with showing where our students come from, is a prime object of these annual presentations.

The total number of students in the regular courses in all the colleges at the close of the September matriculations for the past nine years, were as follows:

Year	Number	Year	Number
1927	1,559	1932	1,711
1928	1,546	1933	1,726
1929	1,551	1934	1,841
1930	1,705	1935	1,826
1931	1,750		

Let us emphasize that these totals do not represent the total number of students' names written in the records of the colleges for each year. They represent the number enrolled and in attendance in all of our colleges at one time, that time being just after the fall matriculations of each year. This is a better basis for accurate calculations of numerical increase and comparison of the number of students from each state, than it would be to use the total number of names written into the records during all of each year. That method, obviously, would mean the inclusion, in the same count, of all seniors graduating at the midyear and of all freshmen who matriculated at the same period to follow them.

The Philadelphia college inaugurated in September, 1934, a one year preosteopathic college requirement. Beginning in the fall of 1936 they will require two years preliminary college work. It is announced that with the class entering in September, 1936, the Los Angeles college will require, as a preliminary, two years of college work. It will be interesting to note the effect upon matriculation. In the table at end of this article, four colleges show marked gain in 1934, four in 1935, but Philadelphia stood still in the former and slumped in the latter. As I said last year:

"Personally, I hope that the two year premedical requirement will never be mandatory in our educational scheme, for I am convinced that it is not the most practical utilization of time. After one-third of a century of service on an examining board, and personal acquaintance with hundreds of practitioners when they first put out their shingles and for years thereafter, I know that, with a properly graded four years high school course as a prerequisite, we can produce in four years of practical professional training an effective general purpose osteopathic physician, who will be capable of taking care of 90 per cent of the illnesses of the people.

"If then this practitioner chooses to specialize and devote himself more to the other 10 per cent of illnesses; if he wants to practice general surgery, for instance, he can put in two years of his life in study to much better effect after his professional course than in two years of premedical study. There is very, very good authority in high allopathic circles to sustain this position. William Allen Pusey, M.D., ex-president of the A. M. A., in an article "Medical Education and Medical Service," says, "I am of the opinion that, provided the high school training includes elementary chemistry, biology and physics, it is perfectly possible for a high school graduate to study medicine intelligently."

"William J. Mayo, M.D., the great surgeon and also an ex-president of the A. M. A. in the *Chicago Daily Tribune* of February 18, 1931, was quoted as saying: 'The present system of medical education is faulty in that it consumes too much of the student's time.'

"Other thoughtful and observing leaders of educational contact in allopathic circles have voiced like views. It is obvious that the 'regular' medical scheme of education is making their profession top heavy with specialists —men who do not care to go out in the sticks and deliver the babies and endure the inconveniences of general practice without every hospital aid.

"Let us by contrast direct our educational scheme to clinical practicality and the production of general practitioners of self-reliance. Then our legislation should harmonize with that—not with arbitrary, student cutting, M.D. specialist, standards."

A study of the figures herein given by states shows that the states of Arizona, California, Georgia, Idaho, Michigan, New Mexico, North Carolina, Oklahoma, Pennsylvania, Vermont and Virginia, and the territory of Hawaii, each in 1935 sent the largest group of students *sent in any one year* since these studies were begun. Ten of these twelve have independent osteopathic boards.

California, for the fifth time, heads all the states as to the total number of students sent. Last year Missouri held the record for the largest number of students sent in proportion to population, and that was the first year any state of large population had held that record, since these studies were begun. Missouri still holds it this year, but little Vermont, which was second last year, again increased her percentage record and so crowded Missouri that had Vermont sent one more student she would have placed first. Missouri sent one student for every 19,600 of population, Vermont one for every 19,900. Vermont sent the most students she has ever sent in any one year. Not being close to an osteopathic college, her record is indeed most remarkable.

Ohio, Illinois, and Massachusetts each sent the smallest number of students of any year since these studies were begun. Ohio making the greatest drop from her previously highest station. Iowa sent the fewest students she has sent in nine years. Other states which sent markedly less students than last year are Alabama, Delaware, Nebraska, Rhode Island, Utah, and North Dakota.

Now if each of the states would send as many students in proportion to their population as Missouri and Vermont did last year, that would mean over 6,000 students in our colleges or considerably more than three times the 1,826 which were in school after the fall registration last year. Osteopathically, things would be "looking up" if that were the situation.

Let each reader figure his own state. Let him take the number representing all the students sent to our colleges last year (See the listing by states which follows) and divide the population by that number. Then use the answer to divide 120,000,000, the total population of the United States in round numbers at the last census, and that will give the total number of students which our colleges would contain if all the states did just what his state did in sending students last year. For instance take Indiana. It sent sixteen students. Sixteen into 3,238,503, the population of Indiana, gives, in round numbers, 202,000. Dividing 120,000,000 by that gives 594 as the total number of students if Indiana set the pace. Kentucky, with four students and 2,614,589 people sends one student for every 653,000, at which rate there would be 183 students all told in our six colleges. The District of Columbia sets a pace for a total of 246 students. At the rate set by any of these, our colleges would be closed.

It helps osteopathy in a given state to have students in the osteopathic colleges from that state. From year

to year the number of students in proportion to population is quite an index of the virility and influence of osteopathy in a given state.

The states, provinces, and countries from which the students come and the number from each is indicated in the following:

STATE PROVINCE OR COUNTRY	Population	Number of Students 1927	1928	1929	1930	1931	1932	1933	1934	1935
Ala.	2,646,248	0	0	1	2	2	3	4	5	2
Ariz.‡	435,573	2	4	3	3	6	8	6	6	9
*Ark.‡	1,854,482	3	3	2	3	3	4	4	2	3
*Calif.	5,677,251	187	143	117	153	181	199	217	214	253
Colo.	1,035,791	22	24	18	17	15	14	11	15	13
*Conn.‡	1,606,903	17	12	15	12	11	7	15	12	12
Del.	238,380	7	5	6	7	8	6	7	5	2
*Fla.	1,468,211	12	11	11	8	10	11	11	18	16
*Ga.	2,908,506	6	4	8	7	10	12	10	9	13
*Idaho	445,032	5	5	4	2	0	4	6	6	8
†Ill.	7,630,654	107	94	99	111	97	99	92	91	80
Ind.	3,238,503	26	28	19	23	19	13	12	15	16
*Iowa‡	2,470,939	91	100	94	95	97	100	107	112	91
*Kan.	1,880,999	59	74	70	79	84	75	62	70	63
Ky.	2,614,589	2	4	3	5	8	4	5	4	4
*La.	2,101,593	4	3	0	1	1	1	1	1	1
*Me.	797,423	21	23	23	26	28	28	26	32	29
*Md.	1,631,526	3	3	1	1	3	3	1	2	2
Mass.	4,249,614	119	127	151	74	89	94	97	99	83
*Mich.	4,842,325	77	66	73	72	83	80	77	110	111
*Minn.‡	2,563,953	33	41	29	24	22	16	16	11	14
*Mo.	3,629,367	144	135	122	128	135	164	184	187	185
Miss.	2,009,821	0	0	0	0	0	0	0	1	1
*Mont.	537,606	23	36	33	38	24	18	14	11	16
*Neb.‡	1,377,963	31	33	42	51	51	48	44	48	37
*Nev.	91,058	0	0	1	0	0	1	0	0	0
N. J.	4,041,334	55	53	56	69	72	77	82	90	88
N. H.	465,293	6	7	6	8	3	2	4	6	7
N. Y.	12,588,066	103	98	110	128	136	113	108	116	113
*N. M.	423,317	2	2	0	0	3	2	2	3	5
*N. D.	680,845	15	8	8	5	3	1	2	4	2
*N. C.	3,170,276	2	1	2	1	3	6	6	8	9
†Ohio	6,646,697	172	161	179	180	159	146	144	145	137
*Okla.	2,396,040	10	8	9	10	19	23	27	32	37
Ore.‡	953,786	14	20	17	13	11	6	5	10	11
*Pa.	9,631,350	133	124	134	143	174	148	144	172	189
R. I.	687,497	21	21	30	31	33	34	26	23	16
S. C.	1,738,765	0	0	0	0	0	3	1	1	1
*S. D.	692,849	8	10	11	15	13	9	9	13	9
*Tenn.	2,616,556	5	6	2	4	6	4	3	2	3
Tex.	5,824,715	14	17	23	24	20	16	23	25	22
*Utah	507,847	0	0	1	1	1	4	4	4	1
*Vt.	359,611	14	9	5	2	2	7	13	16	18
Va.	2,421,851	2	2	2	2	2	2	2	4	5
*Wash.‡	1,563,396	18	16	9	15	8	9	7	9	10
*W. Va.	1,729,205	4	3	5	5	7	3	5	4	7
Wis.‡	2,939,006	21	17	20	25	23	25	19	21	21
Wyo.	225,565	1	2	1	4	4	4	4	3	6
D. of C.‡	486,869	1	1	1	2	1	1	1	1	1
*H. I.	368,336	2	0	1	2	0	1	0	1	3
Canada	10,374,196	22	42	34	41	36	29	27	20	27
Sweden	6,162,446	2	3	0	0	0	0	0	0	0
Norway	2,814,194	1	1	1	0	0	0	0	0	0
Scotland	4,842,554	2	1	1	1	1	2	1	3	3
England	37,932,137	6	7	3	12	9	9	10	7	6
Japan	66,296,000	3	3	0	2	2	1	0	0	0
Australia	6,575,255	1	1	0	0	0	1	0	2	2
Mexico	16,404,030	2	2	0	0	0	1	0	1	1
Brazil	41,477,827	1	0	0	0	0	0	0	0	0
S. Africa	6,929,000	1	0	0	0	0	0	0	0	0
P. I.	12,590,369	1	0	0	6	1	1	1	1	1
Ireland	2,971,992		1	1	2	2	1	1	0	0
Czech.	14,726,158		1		0	0	0	0	0	0
Russia	156,168,700		2		3	4	3	0	1	1
France	41,834,923				0	0	0	0	0	0
Armenia				1	0	0	0	0	0	0
New Zeal.	1,587,547			1	0	0	0	0	0	0
Bermuda I.	27,789			1	0	0	2	1	1	1
Venezuela	3,226,000				1	0	0	0	0	0
China	474,787,386				2	2	2	0	0	0
Colombia	7,851,000				1	0	0	0	0	0
Cuba	3,638,174					1	1	0	0	0
Germany	65,300,000						2	0	0	0
Denmark	3,590,000						1	0	0	0
Costa Rica	527,690						1	1	1	1
Holland	7,832,175									1

* States with Independent Osteopathic Boards.

† Has an osteopathic examiner or a committee of osteopathic physicians.

‡ States with Basic Science Boards.

NOTE—The population of American States is taken from the 1930 census, and of Canadian provinces and other territories within the British Empire from the 1931 census (except South Africa). Other populations are from estimates and censuses made within the last four years.

This student tabulation is made possible through the cooperation of Miss Ruth A. Palmer of the Philadelphia College; Dean H. G. Swanson of the Kirksville College; Miss Vera E. Potter of the Los Angeles College; Dean R. N. MacBain of the Chicago College; Mrs. K. M. Robinson of the Des Moines College, and Dean J. M. Peach of the Kansas City College.

NUMBER OF STUDENTS REPORTED

	1927	1928	1929	1930	1931	1932	1933	1934	1935
Chicago College of Osteopathy	124	131	140	117	101	81	82	92	111
Des Moines Still College of Osteopathy	226	237	209	203	197	193	221	227	163
Kansas City College of Osteopathy and Surgery	103	109	117	125	140	150	163	181	194
Kirksville College of Osteopathy and Surgery	639	598	566	607	594	630	623	718	735
Los Angeles College of Osteopathic Physicians and Surgeons	205	217	217	266	298	308	294	279	295
Philadelphia College of of Osteopathy	262	254	302	387	420	349	343	344	328

A. T. STILL OSTEOPATHIC FOUNDATION AND RESEARCH INSTITUTE

JOHN E. ROGERS
President
Oshkosh, Wis.

R. E. BECKER
Managing Director
Chicago

PROFESSIONAL SUPPORT

For any national organization to inaugurate and execute activities that will result in benefiting the profession it represents, it must have the firm support of that profession. It was with this thought in mind that the officers of the Osteopathic Foundation and Research Institute made a careful study of the many ways in which such support could be obtained. They desired a plan whereby the organization could be put on a firm business basis, a plan that would allow for growth and expansion year after year with little change in its basic structure, a method that would assure the practitioner that every activity the organization undertakes would be put back into his hands in as practical a form as possible, and a plan that with proper support and cooperation, would allow the Foundation and Research Institute to cultivate fields of osteopathic advancement that have been lying fallow a good many years. In keeping with the spirit of its rejuvenation, the A. T. Still Osteopathic Foundation and Research Institute is able to announce that it has developed such machinery in the form of an annual membership plan. This plan was chosen because it will supply the prerequisites for the basic principles of a membership in a national organization as outlined.

The Foundation and Research Institute is in a position to render services to the profession that no other organization can do at the present time. Research work has been done for years but that has been practically the only outlet used. With the reorganization of the A. T. Still Osteopathic Foundation and Research Institute, it will be the policy of the organization to undertake activities that will cover every department of endeavor included in its constitution and by-laws. Acting as a depositary for endowment funds for osteopathic colleges and other institutions; establishing osteopathic clinics and hospitals; developing and executing plans for osteopathic advancement in the laity; editing publications for the practitioner and the laymen, are but a few of the possibilities offered. Research work will continue to play its part in the general scheme but it will take its place among other problems of equal importance.

The mechanics of the annual membership plan have been so constructed that every member in the profession will be able to participate in some degree under the classification used. There is the associate membership for osteopathic students in college and the first two years in practice at one dollar a year; a regular membership at five dollars a year; and a contributing membership for one hundred dollars payable in five years at 5 per cent interest.

Naturally a membership plan would not be offered unless the organization was in a position to offer some-

thing tangible for the money received. Definite services have been developed for immediate inauguration and all other activities undertaken in the future will be put into as practical a form as possible for the use of the individual members.

The A. T. Still Osteopathic Foundation and Research Institute is no longer a static machine. It has reorganized and established new machinery. It is a dynamic force. Join the A. T. Still Osteopathic Foundation and Research Institute now and double the value of its work.

Membership blanks can be secured through Dr. R. E. Becker, Managing Director, 430 N. Michigan Ave., Chicago.

Clinical Research Needed

The record of achievements of the A. T. Still Research Institute in laboratory and animal research is one of which the osteopathic profession may well be proud. It is doubtful whether any other similar amount of scientific work was ever accomplished with such a relatively small expenditure of funds. None of us will ever live long enough to be sufficiently grateful to Louisa Burns and her many capable associates for their splendid accomplishments. To those well informed and in close touch with the work of the Institute for these many years past, the results are almost incredible.

A careful study of the published bulletins of the Institute and a perusal of Dr. Burns' many articles in the Journal of the American Osteopathic Association and other periodicals impresses one with the character of the work done and the worth-whileness of the findings made and the conclusions drawn.

To the Institute we owe the fact that many osteopathic theories and clinical findings have been evaluated, weighed in the balance and placed upon a solid scientific foundation. They have been entirely removed from the realm of speculation and doubt.

The comprehensive and many times repeated studies of the pathology of the lesion area and the remote pathology in the tissues whose innervation is derived from the area of local lesion, constitutes a chapter in osteopathic development which will probably never be surpassed.

It is well at this time to consider carefully the matter of next logical order in research activity. It is my profound conviction, shared by many in our profession, that we should now turn our attention to clinical research. In order to do this in a proper manner and in a way to make the results dependable it would be essential to have such clinical research along definite lines and under the most carefully controlled direction. It would probably be wise to confine the early efforts to specified age groups and perhaps to circumscribed groups of diseases.

I sincerely trust that the new organization, the combined American Osteopathic Foundation and Research Institute, will be able to develop plans and secure financial support for a Department of Osteopathic Clinical Research. This could well be started as a single unit and other units added as indicated with possibilities in the future for graduate study along osteopathic lines and foundations laid for valuable statistical information concerning the results under osteopathic treatment. Quite obviously the work would require most careful supervision and painstaking records so that the conclusions reached would be authoritative and represent the most advanced thought in osteopathic therapeutics. There are valuable potentialities in this direction.

ARTHUR D. BECKER.

Case Reports

CHRONIC HEADACHES

THOMAS J. MEYERS, D.O.
Pasadena, Calif.

The writing of this report was stimulated by reading reports included in the excellent article by Louisa Burns in THE JOURNAL for January, 1935, correlating spinal lesions and clinical manifestations.

Male, aged 40 years, complained of chronic headaches on the right side, extending from the supraorbital margin back over the head down the spine to the shoulders. The pain goes deep into the eye socket and extends, in severe instances, over the whole head and down the back as far as the lower thoracic region. Associated with these headaches are pains in the cecal region and chronic constipation. The headaches came on in 1914 following the shock of an airplane crash, in which the patient fell 2,500 feet, but was able to land without detectable body injury. They have grown worse gradually until at the time of consultation they occurred twice a week with increasing severity. They were interfering with the patient's working efficiency and making him extremely irritable. In the long period, 1914 to the present, he had tried everything that offered promise, repeatedly undergoing osteopathic manipulative treatment, going to numerous allopathic doctors, having constant optometric attention (his glasses had only recently been changed) and submitting to chiropractic ministrations. The only relief obtained was at the hands of one osteopathic physician—who could, by gently manipulating the muscles at the right suboccipital region, remove the headache—but it always returned.

On examination, the first thing noticed was that the right shoulder was lower than the left, by about an inch. "Oh, yes, that has been that way for years—I always have to have my coats padded to compensate for it," was his remark. Tracing the head pains I found further that they were associated with pains in the region of the first and the tenth thoracic vertebrae, and the lumbosacral junction. Checking further, pressure over the insertion of the latissimus dorsi in the right arm (the low shoulder) demonstrated pain. Pressure at the same time at the right upper margin of the sacrum relieved this pain. From these and other structural findings, I concluded we had a structural problem involving the whole spine but originating in the sacrum, which I diagnosed as tipped (base) forward and to the right. Corrective force (steady pressure) was applied at the apex in the direction opposite to that of the lesion, and maintained for about five minutes. On examining the shoulder levels again, I found the right shoulder still a little dropped. I did no more treating then, but had the patient return the next day. None of the pains, elicited the previous day, could be found this time, but the right shoulder was still lower than the left. I treated him as I did the day before, but the shoulder remained unchanged. No treatment was given to the neck at either visit. Inasmuch as I could not find any sensory evidence of further trouble, I discharged the patient and indicated that I did not think there would be any recurrence of his headaches—but since there was still some structural defect, as evidenced by the low shoulder, further work may be necessary in the future.

The result was rather spectacular. To date, after several weeks, there have been no headaches, although he has done everything that formerly would cause one. Immediately after the treatment, he began having trouble with his glasses, and finally had to discard them altogether, as they no longer fitted him.

Fortieth A.O.A. Convention in New York City—July 20 to 24

Extensive Scientific Exhibit in the Making

When the fortieth annual convention of the American Osteopathic Association opens in the Waldorf-Astoria Hotel next July, one of the most important and interesting features will be the scientific exhibit. In addition to the displays made by each of the six approved osteopathic colleges and a general museum display, there will be others, including one by the Associated Hospitals of Osteopathy, and an exhibit of anatomical models loaned by The Clay-Adams Company.

Otterbein Dressler, Philadelphia, National Chairman of Scientific Exhibits, in a recent report to the Executive Committee of the New York Osteopathic Convention Committee presented a complete outline of the scientific exhibit so far as it is now arranged, adding as an expression of his own opinion that the exhibit will far outrank anything of the kind ever before attempted.

"It has been arranged," reported Dr. Dressler, "that there shall be no competition in exhibits among the colleges. Each college will so arrange its scientific exhibits as to parallel and illustrate the subjects under discussion by that college on the professional program. The colleges will each have floor, table, and wall space equal to that occupied by each of the others. And so far as it can be arranged, no advantage of position or location will be enjoyed by any college. The tables in each separate space will provide about 129 square feet for display purposes. Each college will provide certain museum pieces and other material of the same sort will be provided for common use."

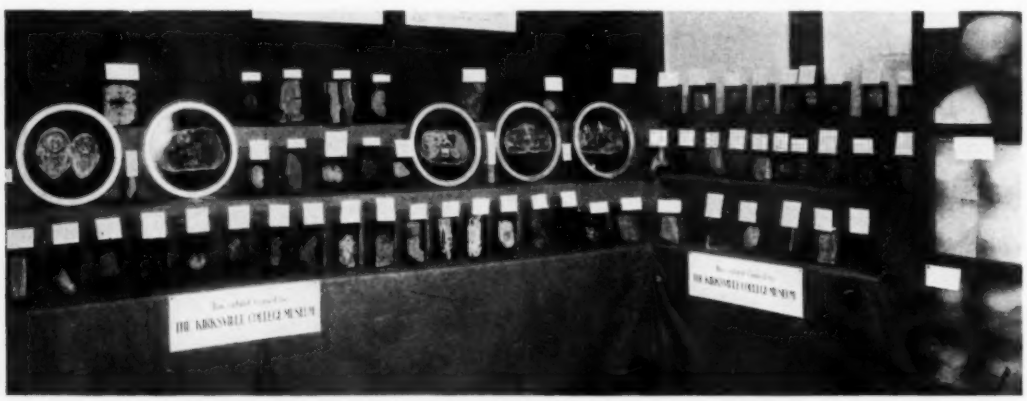
The scientific exhibit will be open to members of the profession at all hours. It is recognized, however, that the exhibit will have a strong appeal to the laity and for that reason it will be open to the public for one hour each afternoon. Additional time for public display may be arranged mornings and evenings at the discretion of Dr. Dressler.

HELEN M. DUNNING, Chairman,
Public Relations Committee.

PAST PRESIDENTS' DAY AT THE CONVENTION

Those who attend the fortieth annual convention of the American Osteopathic Association in New York City next summer will have an opportunity to greet, and to hear the messages of former Presidents of the Association on Friday, July 24. Since 1898, of those who have been honored by election to the presidency, twenty-nine are still living. Of that number, twenty-three have expressed their intention to attend the convention and to take active part in its proceedings. Three others hope to be able to do likewise, and they, no doubt, will be present, their health permitting. Following is a list of those past Presidents of the Association who, we hope, will be present:

YEAR ELECTED	NAME
1898	Dr. S. C. Matthews, New York City.
1899	Dr. A. G. Hildreth, Kirksville, Mo.
1902	Dr. C. C. Teall, Weedsport, N. Y.
1903	Dr. Charles Hazzard, New York City.



Part of the scientific displays at the national convention in Cleveland last year.

PAST PRESIDENTS OF THE A.O.A.

YEAR ELECTED	NAME
1904	Dr. C. P. McConnell, Clear Creek, Calif.
1906	Dr. S. A. Ellis, Boston.
1908	Dr. Thomas L. Ray, Fort Worth, Texas.
1911	Dr. J. L. Holloway, Dallas, Texas.
1913	Dr. P. H. Woodall, Birmingham, Ala.
1914	Dr. C. A. Upton, St. Paul, Minn.
1915	Dr. O. J. Snyder, Philadelphia.
1917	Dr. George W. Riley, New York City.
1918	Dr. H. H. Fryette, San Mateo, Calif.
1919	Dr. H. W. Conklin, Battle Creek, Mich.
1920	Dr. W. E. Waldo, Seattle, Wash.
1921	Dr. S. L. Scothorn, Dallas, Texas.
1922	Dr. G. W. Goode, Boston.
1923	Dr. W. A. Gravett, Dayton, Ohio.
1924	Dr. C. D. Swope, Washington, D. C.
1925	Dr. Asa Willard, Missoula, Mont.
1929	Dr. John A. MacDonald, Boston.
1931	Dr. Arthur D. Becker, Des Moines, Iowa.
1932	Dr. Victor W. Purdy, Milwaukee, Wis.
1933	Dr. Perrin T. Wilson, Cambridge, Mass.
1934	Dr. George J. Conley, Kansas City, Mo.

The celebration of Past Presidents' Day will begin Friday morning at 9:00 o'clock with introduction of each of the Presidents, who will respond briefly. A few will be expected to give more extended addresses. It is hoped that there will be present at the sessions on Past Presidents' Day representative delegations from the student body of each of the approved colleges.

GEORGE W. RILEY,
Program Chairman.

Department of Professional Affairs

C. H. MORRIS
Chairman
Chicago

BUREAU OF PROFESSIONAL DEVELOPMENT

ARTHUR E. ALLEN
Chairman
Minneapolis

PLEA FOR CASE REPORTS ON BIRTH INJURIES

The Osteopathic Child Study Association has asked for more case records of injuries occurring at birth, which have produced osteopathic lesions. These reports should include a record of the lesion or lesions found, symptoms produced, and the results of treatment. A request of this nature should produce a large number of reports immediately, but from past experience the Chairman of this Bureau is dubious of quick results. Every osteopathic physician should consider this a personal request, and if he has one or more cases of this type, he should write out the history on his own stationery and send it to the Osteopathic Child Study Association, 40 Passaic St., Hackensack, New Jersey.

Osteopathy is fighting on all fronts to establish its claim to scientific recognition. Here is an organization ready, willing, and able to assist us if we will but make the effort to supply the material. What more could we ask for? Join the battle for osteopathy and send in a case record today.

Ninety-three individuals and institutions have realized the value of this work and have shown their appreciation of the efforts made in their behalf, by sending in one or more records from their files.

A.E.A.

Department of Public Affairs

E. A. WARD
Chairman
Saginaw, Mich.

BUREAU OF INDUSTRIAL AND INSTITUTIONAL SERVICE

WILLIAM O. KINGSBURY
Chairman
New York

J. J. McCORMACK
Vice Chairman
Sheboygan, Wis.

SOCIAL JUSTICE FOR THE WORKINGMAN

One of our prominent members located in a large midwestern city has written at some length in criticism of the industrial report blank which was printed in the January JOURNAL and FORUM.

His letter is very interesting and provides an accurate expose of the conditions under which industrial physicians and surgeons must work in his state; of the high-handed methods used by insurance carriers; and the utter failure of the workman's compensation law to protect the worker, or even guarantee adequate treatment. His criticism is well taken, and I agree with him in the main. He says in part:

"My point as to the incompleteness of the record blank is that it does not give sufficient space for recording the detail as to the actual condition treated, the costs of treatment divided as to x-ray, laboratory work, surgical or other treatment, where given, and the details of disability, whether partial or complete.

"For example, I do all of the x-ray and laboratory work for one medical surgeon who handles only industrial accident cases, receiving his cases from about seventeen accident companies (insurers). His office was selected next to mine for convenience in handling his work.

"My contact with his cases and familiarity with the methods he is compelled to use in handling his cases makes it apparent that it is very different from the way I handle mine, and the way most of my osteopathic colleagues handle theirs.

"For example: The workman's compensation cases are held to the lowest possible scale. He receives $2.00 for the first office visit and $1.00 for each succeeding visit. This scale is enforced by the insurance companies even though considerable surgery is involved. He is compelled to use the greatest of care in the materials and service rendered. It used to be the profitable custom to prolong the cases in this field, but the competition is so strong today that the insurance carriers have been known to change surgeons when the cases ran one or two dollars over the standard in a series, one notable case being a firm which employs quite elderly men who suffered many infections which were slow to heal and in a series, ran slightly higher than the $11.00 standard average which was alloted to cover all costs.

"We are familiar with each other's methods, and so we have recently discussed our common type of so-called 'low back cases.' His records show an average cost to the insurance carrier of $7.00 with no time lost except in a few exceptional cases, where a special note of explanation and a request to the insurance company gains authority for additional treatment or expense. This means, in practice, that he must disregard anything which is not a straight traumatic injury or strain. It means that he must disregard all contributing causes such as arthritic conditions except such as will relieve the insurer of further financial responsibility. He does not manipulate, does not use light or diathermy, uses no palliative treatment except perhaps a liniment or ichthyol ointment plus strapping. X-ray examination is given only when there is great trauma and possibility of fracture which might

lead to permanent disability. If fracture is strongly suspected, he may receive permission for one 8 inch by 10 inch plate at $5.00. Now my usual fee for x-ray examination in a private case would be probably $15.00 for the two views necessary properly to take the responsibility as a private practitioner, but here the insurance company takes the responsibility and does not lose on the average, although occasionally there is a hard one that nicks them plenty. The lack of recorded disability under the law is gotten around by transferring the employee temporarily to some duty which is lighter or requires less muscular work. If he does not feel that he can work, and refuses, it has seemed to me that they manage to fire him so that he is classed as a malingerer. The very difficult case with prolonged and recurrent disability or appeal to the compensation board may be sent to a specialist whose name carries weight before the courts, and who probably received a very much higher fee on this account, but the workman always loses and may find himself blacklisted.

"This may all seem far from the point, which is that there is a system, and when my colleagues tell me that they may receive full private case fees for their industrial compensation work, I know that it is only because of a case falling into their hands occasionally and their forcing their claim because of the law which provided that a laborer may select a physician of his choice and the fee customary must be paid. Try to do it except where there is a lawyer in the case to bolster up the claim and you will be met with a plain refusal and put on the blacklist and the workman finds it difficult to find a job anywhere."

Before taking up the problem of the contents of the questionnaire, which was the point on which our correspondent based his letter in the first place, there are two of his points which should be considered: (1) He seems to assume that each physician has a standard fee for the work he does in private practice. (2) He says such fees cannot be collected from insurance companies without a lawyer to bolster the claim, and even then the workman will lose his job.

Few, if any, physicians in such positions as this man describes have a standard, inflexible fee scale. Charges are made in accordance with the ability of the client to pay, and it is certainly not unreasonable to expect them to receive from insurance companies at least as much as they would charge the workman under consideration under similar circumstances. Furthermore, the statement that such fees as are received in private practice are not paid by insurance companies, cannot be supported. There are any number of doctors in the profession who are regularly receiving such prices with no objection either from employers or insurance companies.

I need not discuss the question of including in the report blank columns for x-ray and other laboratory examination, types of treatment, etc., further than to say that these were considered, but lack of space made it necessary to eliminate them.

The aim of this survey is to gather statistics, as accurate as possible, of osteopathic care of industrial accident cases, in order that we may know whether osteopathic care is superior to, and more economical than, other types of treatment. I have never doubted its value or efficiency. In order to educate insurance officials, employers, members of insurance commissions and labor, we must have statistics of sufficient number and accuracy to command attention.

It is evident from our correspondent's letter that in his state industrial insurance methods have been reduced to a low level, almost a racket, in which the insurance carrier is all powerful. He is the only one who benefits. The workman is the big loser. He is the one who suffers. In many cases he has not the benefit of an accurate diagnosis. He gets a hit or miss treatment, dependent upon the type of his injury and whether it may draw the sympathy of the jury. If he complains, he is classed as a malingerer.

The doctor's fees are cut to the extreme. He is limited to a small cost for each injury. He must have the insurance company's interest at heart always, not the patient's. So the doctor suffers too.

The influence of the insurance carrier in that state is such that employers must obey orders and change injured employees' work or fire them as demanded. He is the only one concerned who makes a profit. He is interested in collecting the premium and giving as little in exchange as possible. He hides behind the plea that competition forces him to use such methods.

Workmen's compensation laws were passed to protect the workman from unscrupulous lawyers, doctors and insurance carriers. The ideal compensation law makes it possible for the workman to receive just treatment and compensation without the necessity of employing a lawyer. Many states have laws of this class.

In states where conditions exist such as above, those described by our correspondent, it is a waste of time to attempt to influence insurance carriers or employers of our ability. Statistics are useless. What is needed is an awakened labor, to fight to have a compensation law passed that really protects the injured workingman. Here our appeal must be made to the labor union.

In New York state these abuses were recognized and corrective legislation was passed.* The amended law was a much needed social change. Similar laws should be passed in many other states, and osteopathic physicians should use their influence to bring these changes about. The trend of the times is toward social security and social justice. An awakened public will demand changes, and when new laws are written or old ones amended, the osteopathic profession must see that their interests are not jeopardized.

J. J. McC.

COMMITTEE ON VOCATIONAL GUIDANCE

MARY L. HEIST
Chairman
Kitchener, Ont.

STUDENTS CONTACT PROSPECTS

While we have great appreciation and admiration for all who in any way are furthering the interests of osteopathy, whether it be in research, in organization, in legislation, or in just plain service to humanity, we are impressed with the responsibility of this Committee. To maintain our present position in the therapeutic world, we need many recruits to take the places of those who have gone to their reward or who are retiring from practice. If we are to advance, we surely need many more who have the courage and enthusiasm of youth, those who will do the things that some say cannot be done.

Many young men and young women who would make good physicians need to be told of the great opportunities offered in osteopathy.

It is with great satisfaction that we learn that the students in all the colleges are themselves making an effort to increase the registration in their respective colleges. The Student Council of the Chicago College has gone about the matter in earnest, urging the students to make personal contact with prospective students. They have made a splendid start and are making a fine contribution, not only to their Alma Mater, but also to osteopathy.

In an article by Olive H. Rowe on vocational guidance in South Africa, we learn that the universities take

*Bailey, A.W.: The Need for Osteopathy in Industrial Accident Cases. Jour. Am. Osteo. Assn., 1936 (Jan.) 35:236-238.

pride in the placement of graduates. In another paragraph she uses the expression "aftercare." Does not this contain a hint for us of what we may do to help place graduates and befriend them until they become established in practice?

M. L. H.

LEGAL AND LEGISLATIVE

A. G. CHAPPELL
Jacksonville, Fla.
Legislative Adviser in State Affairs

Reregistration of Licenses

Osteopathic licenses must be registered annually in a growing number of states. Among such reregistrations due now or soon, are the following:

March 1, Colorado, $2.00 for those in the state, $10.00 for others. Secretary, Harvey W. Snyder, M.D., Denver.

April 1, Utah, $3.00. Address the Department of Registration, Salt Lake City. Wyoming, $2.50. Secretary, W. H. Hassed, M.D., Capitol Bldg., Cheyenne.

Prior to April 15, Montana, $2.00 for those in the state, $1.00 for others. Secretary, Asa Willard, Wilma Bldg., Missoula.

May 1, Iowa, $1.00. Secretary, D. E. Hannan, 201 Bruce-McLaughlin Bldg., Perry. Washington, $2.00. Address the Department of Licenses, Olympia.

May 31, New Mexico, $3.00. Secretary, Caroline C. McCune, 138 Washington Ave., Santa Fe.

July 1, Michigan, $10.00. Secretary, F. Hoyt Taylor, 1702-03 Olds Tower, Lansing.

Illinois

CORPORATION PRACTICE OF MEDICINE BARRED

The Illinois Supreme Court recently held that a corporation is incapable of practicing medicine legally in Illinois. The decision affirmed an order of the Cook County Superior Court directing a low cost clinic in Chicago to cease practice.

Indiana

LAW CHANGES RULES ON PUBLIC WELFARE WORK

A special session of the Indiana legislature has put through carefully written measures which in effect provide for the abdication of the state so far as public welfare work is concerned. The rights, powers and duties of the Board of State Charities and the old Department of Public Welfare are to be conferred upon the newly-created State Department of Public Welfare which is given jurisdiction over all of the state charitable, penal, reformatory, and correctional institutions, and the institutions for the aged, deaf, blind, or otherwise handicapped. Also it has the responsibility for the approval of the incorporation of charitable agencies, the licensing and supervision of all the private and local public child-caring agencies and institutions, and "research into crime . . . [and] physical and mental disability."

It is also provided that "the State of Indiana will comply with all requirements of the provisions of [the Federal Social Security Act], amendments thereto and rules and regulations issued thereunder," [condensed] not only past and present but specifically "with such provisions as any such [Federal] department may, from time to time, find necessary."

It also gives the State Board the right to discharge county or district Directors of Public Welfare. Osteopathic physicians evidently are to be quite thoroughly kept from public welfare work by giving the State Board full authority over appointments and also using, several times, such expressions as "physician licensed to practice medicine, surgery and obstetrics in this state and who shall hold the degree 'doctor of medicine'".

Iowa

BASIC SCIENCE BOARD

The district court of Woodbury County, Iowa, on February 16, 1936, issued a temporary injunction restraining the basic science board of examiners from issuing certificates "to any person or persons without such person or persons having first passed an examination before the said board."

The basic science law undertook to exempt from examination in any branch, persons who had completed courses of study in such branches in "any college or university accredited by the North Central Association of Secondary Schools and Colleges." The petitioners for this injunction stated that there is no such named association, and furthermore that the North Central Association of Colleges and Secondary Schools "is a purely voluntary unincorporated association without legal existence or authority to transact business in the state of Iowa . . . and has in fact no educational standard that is of substantial value in the educational world, and that the standards and rules of such association are purely with reference to material things and proper ownership and not based upon high educational standards."

They stated further "that the state of Iowa through the board of education and the department of public instruction has established certain standards . . . that are the proper standards and the only standards that should be recognized by the laws of the state of Iowa. . . "

Kentucky

NEW STATE BOARD REGULATIONS

The following is a copy of the minutes of a meeting of the State Board of Health of Kentucky, held in its offices in Louisville on Monday, January 27:

"Upon motion of Dr. McCormack, seconded by Dr. Johnson, and unanimously carried, the following Resolution Regulating the Granting of Certificates by the State Board of Health of Kentucky to Practice as Osteopathic Physicians and Surgeons, was adopted:

I

BE IT RESOLVED, that the following resolutions and requirements be hereby officially declared adopted, affirmed, and incorporated as part of the rules and regulations for the granting of certificates governing the practice of osteopathic physicians and surgeons in the State of Kentucky, to-wit:

II

RESOLVED, that all applicants before the State Board of Health of Kentucky to practice as osteopathic physicians and surgeons must be graduates of an accredited four year high school, and have completed satisfactorily two years college work, and be graduates of a college of osteopathy and surgery wherein the minimum requirements are four college years of nine months each, and said college and curriculum must be approved by the American Osteopathic Association.

III

RESOLVED, that the State Board of Health of Kentucky shall reserve the right of approval of said colleges.

IV

RESOLVED, that such applicants meeting the requirements of the two paragraphs immediately preceding, must take the same general examination as is taken by the graduates of a college of medicine and surgery, and in addition, the practice of osteopathy, and said examination to be prescribed by the State Board of Health of Kentucky.

V

RESOLVED, that the State Board of Health of Kentucky interprets those sections of Article 1 of Chapter 85 of Carrol's Kentucky Statutes pertaining to the taking of examinations and the requirements therefor, for certificates to practice medicine and surgery, especially those acts contained therein and passed in the years of 1904, and 1920, and more particularly, sections 2613-2, 2615, 2615-1, 2616 and 2618a-1 of said statutes of Kentucky, and to mean that all applicants who are subjected to the same aforesaid prerequisites for said examination and that all those who successfully pass such examination as prescribed in the paragraph immedi-

ately preceding are to be given the same equal privileges in the practice of the healing arts as licentiates of any other school of practice.

Massachusetts

H. 573—to authorize "non-profit hospital service" corporations which should be exempt from taxation and from the provisions of the state insurance laws.

H. 574—to require hospitals which receive public support to admit for practice any physician licensed under the medical practice act.

H. 662—to require the consent of the patient before a physician may remove any organ of his body; also that the physician must provide a written explanation of the necessity for the operation, and that any organ removed must be preserved until the patient directs its disposal.

H. 846—to require obstetricians to treat the eyes of every child within two hours after birth with a prophylactic provided by the state.

H. 949—to forbid the requirement of vaccination or inoculation as a prerequisite to admission to any school or other public institution, or the exercise, performance or enjoyment of any right, duty or privilege, and forbidding the vaccination or inoculation of any person without the written consent of parents or guardian in the case of a minor, or of the individual in the case of an adult.

H. 1441—for an independent board of chiropractic examiners. It would require high school education and three years of six months each of chiropractic.

H. 1528—to require applicants for a medical license to have the qualifications required for graduation from a high school; to have had a professional course of four years of not less than thirty-two weeks in each year or the equivalent; to have received the degree doctors of medicine or its equivalent from legally chartered medical school and, for those outside Massachusetts, approved by the board.

S. 388—to provide that the board of registration in medicine shall be made up of one graduate each of Harvard University Medical School, Boston University School of Medicine, Tufts Medical School, the College of Physicians and Surgeons, Middlesex College of Medicine and Surgery and the Massachusetts College of Osteopathy.

Mississippi

H. 213 and S. 223—to provide for a state hospital commission to handle funds appropriated for the hospitalization of indigent sick. It would prescribe the conditions under which hospitals may receive state appropriations and regulate the operation of such hospitals.

H. 289—passed the house, the uniform narcotic drug act.

H. 540—to regulate the practice of chiropody or podiatry, practitioners to be licensed by the state board of medical examiners.

S. 110—a podiatry practice bill providing for podiatry licenses to be issued by the state board of medical examiners.

S. 442—to create a county medical association in each county and to restrict the right to practice medicine to members of such societies. These county medical associations would have charge of all public health work in their respective jurisdictions, including the enforcement of the rules and regulations made by the state board of health.

New Jersey

A. 416—to require the board to issue osteopathic licenses to licensed chiropractors in New Jersey having unrevoked licenses to practice osteopathy elsewhere.

New York

S. 503—for a system of compulsory and voluntary health insurance. Throughout the bill the term, "general medical practitioner," which was in the original model social security bill, has been changed to "physician in general practice," which makes it seem less likely that courts or administrators will misinterpret it in a way to discriminate against osteopathic physicians.

S. 764—would exempt from the provisions of the insurance laws certain classes of corporations operating under plans for providing medical and surgical care and treatment, nursing and hospital care.

S. 898—for a state board of opticians.

S. 1065—to make revocable the license of a physician who advertises for patronage by means of handbills, posters, circulars, letters, stereopticon slides, motion pictures, radio or newspapers.

S. 1259—providing for the treatment of indigent sick in their homes by their family physicians or physicians of their own choice.

S. 1341—to prohibit shoe stores which cater to those with abnormal feet from accepting orders for shoes for such feet except on the prescription of registered podiatrists.

S. 1389—authorizing the revocation of licenses of physicians for various causes including advertising for patronage by means of handbills, posters, circulars, stereopticon slides, motion pictures, radio, newspapers or magazines.

S. 1393—for a state board of chiropractic examiners.

S. 1443—to regulate the conduct of clinical laboratories including the requirement that they shall be under the immediate supervision of licensed clinical laboratory technologists or of persons licensed to practice medicine and surgery in the state.

S. 1528—a social security bill of same general import as that recently enacted in Indiana.

S. 1534 and A. 1793—for a board of psychiatric examiners.

A. 550—to prevent any employee of a hospital working more than eight hours in one day or forty-eight hours in one calendar week, and providing for twenty-four consecutive hours of rest in each calendar week.

A 623—to require a health examination of applicants for a marriage license.

A. 864 and A. 865—to establish a board of chiropractic examiners.

A. 1511—to forbid the endorsement without examination of any license to practice medicine in New York whose holder shall not have graduated from a professional school registered as maintaining at that time a standard satisfactory to the department of education.

A. 1731—for a state board of chiropractic examiners.

Oklahoma

DUTIES OF INDUSTRIAL COMMISSION

On December 10, 1935, the Supreme Court of Oklahoma denied a rehearing in the case decided October 15, 1935, of Corbin vs. Wilkinson. The case concerned a disagreement between an injured worker and an attorney, about a contingent fee. The words of the decision, however, may have far-reaching application if the fact be established that osteopathic manipulative treatment is the best for back injuries. The court said in part:

"The Compensation Act was passed for the special benefit of injured workmen. The legislature intended the benefits of the act shall flow to the injured workmen and their dependents in order to afford them a living and prevent them from becoming public charges. Many provisions are contained in the act in order to accomplish this purpose. . . . The Industrial Commission is the instrument through which the act functions. The Commission possesses administrative and quasi-judicial powers. The powers of the Commission to some extent are judiciary; that is the relationship between the commission and the injured workmen is analogous to the relationship between the federal government and its Indian wards. . . The commission is even given the power to

protect the injured workmen against their own improvident acts and also against encroachment of their own doctors and lawyers."

Rhode Island

H. 597—for a system of compulsory and voluntary health insurance.

H. 714—to amend the chiropody practice act.

H. 745—a basic science bill.

H. 747—to amend the uniform narcotic drug act, to include cannabis and substances which are not chemically or physically distinguishable from it.

H. 748—to provide that on appeal from an order revoking a license to practice medicine, osteopathy or chiropractic, the order of the board shall remain in effect while appeal is pending.

H. 749—to authorize the state department of public health to examine persons reasonably suspected of having venereal disease and to quarantine or isolate infected persons whenever necessary for the protection of the public health.

S. 76—for a board of examiners in naturopathy.

South Carolina

H. 1 H. 1500—requiring a health certificate of those seeking license to marry.

Amidopyrin Scheduled as a Poison

Mr. Hall-Caine asked the Home Secretary whether his attention had been called to the increase of deaths by poisoning due to pyramidon; and whether steps were to be taken to ensure that this would be classed as a poison at the earliest opportunity.—Sir John Simon replied: Yes, Sir. Under the new Poisons List and Rules which are to come into operation on May 1st next, this drug (which is more correctly described as amidopyrin) will be scheduled as a poison and its sale to the public will be unlawful except on medical prescription.—*The Lancet*, February 22, 1936.

Scottish Osteopathic Research Institute

An announcement, made at the annual convention of the British Osteopathic Association and reported in *The British Osteopathic Review*, relating to the formation of a Scottish Osteopathic Research Institute, was quoted in a recent number of THE JOURNAL*. *The British Osteopathic Review* for February reports that it has been impossible to carry out the enterprise and the following statement is made:

"The Faculty of Medicine of Edinburgh University are prepared to grant facilities for research work to be carried out within the laboratories of the University, provided arrangements for carrying out such research work are made through the usual channels, that is, in consultation with, and subject to the approval of, the head or heads of the departments in which the proposed work would be carried out.

"The Faculty of Medicine have not appointed an advisory committee to control such research work, and so far no arrangements have been made with the individual head of any department to have research work carried out within the University laboratories."

*Osteopathic Research in Scotland. Jour. Am. Osteo. Assn., 1936 (Jan.) 35:250.

Posture and the Mind

There is no back so crooked that its appearance may not be improved by effort. Conversely, there is none so straight that it may not by slouching be made to simulate deformity. I am convinced that, if the importance of the mental attitude were more generally understood and emphasized, many of the severe corrective methods now in use would be unnecessary.—*Armitage Whitman*, M.D., *"Scoliosis,"* Jour. Am. Med. Assn., Jan. 11, 1936.

Associated Colleges of Osteopathy

J. M. PEACH, B.S.
President
Kansas City, Mo.

THE TEACHING OF OSTEOPATHIC PRINCIPLES*

H. E. LITTON, D.O.
Kirksville, Mo.

As a teacher of technic, I propose to visualize what seem to me to be the important things to be taught in the course of principles, so that when the student comes to the study of technic he will be properly prepared and ready for efficient work. The subject of principles is of great importance.

It is usually the student's first subject that is in any way clinical. Outside of perhaps a brief course in the history of osteopathy, and disjointed information on osteopathy obtained from the instructors in other subjects, his idea of osteopathy too often has undergone little change from his notions before coming to the school. Some students come with the idea that osteopathy is a "cure all"; that there is a specific lesion for every possible condition; that treatment is a matter of "button punching," etc. They have either been misinformed deliberately, or have drawn faulty conclusions from the information that has come their way. In other words, the course must be negative for a few overenthusiastic students. These must be molded into a more rational viewpoint of the science which they are to practice. It would not be right for the instructor to ride rough-shod over these cherished beliefs. It must be done gently. Every step taken must be rational and so presented to the student that he will not feel that he has nothing left.

At the opposite pole is the student who has little or no belief in osteopathy, and whose presence in the college is often hard to understand. He may have decided that it offers a good financial future. He may have come to be with some friend in the school. He may have decided that osteopathy is the "back door to medicine" and only wishes to get some kind of a state license. This group is a motley collection, although not a large one. At any rate, the teacher of principles must fire in these students a spark of respectful enthusiasm for osteopathy. Here, again, the approach must be so firmly logical that even the most stubborn mind will have to accept a portion of it, and the faculty believes that when once the student is in the clinic, the conversion will be complete. We have seen this happen many times. Some come to study osteopathy simply because it looks like a good way to make a lot of money. In the principles classes they find that everything in osteopathy has a sound basis. Put to work treating patients in the clinic, they discover that they can get results with osteopathy, and by the time they graduate they enter practice as firm believers.

The bulk of the students are plain, reasonable men and women who approach the subject with the right frame of mind. This group, I think, is becoming larger all the time, due to higher standards of pre-entrance study, more discriminating student campaign work and a better position for osteopathy in the eyes of the public. This section of the class moves along with a good instructor with no special problems.

In the Kirksville college, the course covers ninety hours. A few hours are given to the history of medicine and osteopathy for the purpose of giving a solid background. Here the instructor should take occasion to make the discovery of osteopathy a logical step in therapeutic advance. Dr. Still was a sound philosopher and student. He worked on his original theory for many years—at least ten—before he got it put together in 1874. To me,

*Given before the meeting of the Associated Colleges of Osteopathy held during the Convention of the A.O.A. at Cleveland, 1935. Dr. Litton discusses the subject from the standpoint of a teacher of osteopathic technic.

that date means that his thought processes had finally brought together the loose ends of many ideas and coordinated them into a rational philosophy.

I have no way of knowing how principles were taught thirty-five or forty years ago beyond reading the articles and books published at the time. If there were those who considered the spinal lesion as the one and only cause for disease, such a concept very soon evolved into something more reasonable. It had to since bacteriologists were pointing out some pathogenic organisms which could not be ignored. Surgery, also, soon assumed its rightful place.

Actually, I am proud of the rapid evolution of our science, for it demonstrated that our pioneers had good minds and could correlate facts. The mere fact that there might be some other causes of disease than the spinal lesion, did not mean that the lesion was of no importance. It was then and still is one important cause for dysfunction which either manifests itself by disagreeable symptoms or lowers resistance to invading organisms. It is a cause for disease that is not yet recognized by the medical profession in general, and until it is, osteopathy must go its way alone.

One of the biggest tasks of the teacher of principles is to explain what is meant by an osteopathic spinal lesion. It is a hard enough problem to present it to the student whose mind is receptive, but the task becomes tremendous when one encounters a critical audience. I think all of us have felt the lack of adequate research work along this line but the situation became critical this past year during the osteopathic inquiry in the British House of Lords. The osteopathic representatives were at a disadvantage because of the lack of sufficient research conducted and presented in an acceptable manner.

Most of our research work has been directed towards demonstrating the effect of spinal lesions, and it is extremely valuable. Animals make suitable subjects for this work. However, the weight-bearing differences between a four-legged animal and a two-legged man; the differences between experimentally produced lesions and those commonly found in the human subject; the differences in the joint anatomy of the different species; the fact that many features of lesions are lost under anesthesia or in post-mortem, make the problem a hard one. However, it must be solved for the existence of the joint lesion is one of the most important foundation stones of our structure. Clinically we know that its exists. We know many things about it by clinical observation, but we must admit our lack of sufficient, definite, research evidence. Until we have that, our task of gaining the approval of the world of general science upon our theories cannot be accomplished.

One of our former teachers of principles has used this definition of a joint lesion: "A condition in which the articular facets of a given joint do not resume normal relations during rest." The definition adopted by the Committee for the Study of Nomenclature and Terminology of Osteopathic Technic was: "Any alteration in the anatomical or physiological relationships of the articular structures resulting in local or remote functional disturbance."

Both of these terms mean something to us who are acquainted with the thing being described. Would they mean anything to a critic? I find such definitions a poor basis for teaching technic, and have evolved a theory for the sequence of lesion formation which may not be at all suitable to others. Our explanation must take into consideration a number of clinical facts:

1. It must explain immediate joint disability, as manifested by acute torticollis or suddenly acquired lumbago.

2. It must explain the remote effects of lesions.

3. It must explain how some lesions correct themselves; how soft tissue work alone can secure clinical results; how physiotherapeutic methods may sometimes correct the lesion; how the "bony manipulator" who uses neither soft tissue work or heat can secure his results.

4. It must explain why a "pop" can be secured from a nonlesioned joint as well as from one in lesion, and why the "pop" cannot be immediately repeated.

We accept as a fact that for a single spinal articulation the axis of motion is in the nucleus pulposus. We have been impressed by the flatness of the articular facets when considered in the light of the arc of motion they must subscribe about that axis of motion. On the cadaver and on prepared specimens, we have noted that when a joint is carried to any extreme of motion, there is an angle formation between the facets. We wondered what this meant.

We have always felt that the belief that lesions occur within normal limits of motion is subject to question, for it is unreasonable to suppose that the marked symptoms of an acute lesion could occur under "normal" conditions. We assumed, then, that the normal range for a joint was one which does not produce sufficient change in facet relationship to strain the capsular ligament or break the synovial seal between the facets or bring about an impingement of the edge of one facet upon the face of the other. If joint motion goes beyond these limits, the capsular strain or the facet impingement, or both, set up the abnormal stimuli which produce muscle spasm, nerve reflexes and other symptoms of a lesion. Due to the faulty angulation of facets, the spasm of the muscles, particularly of the small deep spinal muscles, tends to maintain the new relationship. They are designed to produce motion parallel to the joint plane. The joint plane is altered so that the direction of pull increases the facet impingement—another vicious cycle. So far this theory has explained the immediate joint disability and the remote effects.

If by soft tissue work, or physiotherapy, the muscles are sufficiently relaxed, passive motion will restore the facets to normal relationship. If a "bony manipulator," by skillful force, can reposition the facets in spite of muscle spasm, he has removed the cause of the spasm, and if pathological changes have not developed in the muscles, the problem is solved. Accidental active motion by the patient, or muscle relaxation in sleep, may permit the lesion to correct itself.

The synovial seal presents some limited resistance to facet separation. At a given point, this resistance is overcome, whether the joint be lesioned or otherwise, and the joint is suddenly carried to the point of tensing the soft tissues. Whether the "pop" is due to the breaking of the seal or the tensing of the soft parts, I do not know. Until the seal reforms to provide resistance and consequent sudden release, the joint cannot again be "popped."

This is the theory of lesion formation which we teach in technic at the Kirksville College of Osteopathy and Surgery, chiefly because the microscopic and macroscopic findings of the A. T. Still Research Institute have given us little to tie to in technic. The soft-tissue damage and hemorrhage described in those volumes is hard to correlate with the results of spinal manipulation. We would like to have discussion on this theory so that it may either be substantiated or discarded for a better one.

In the principles classes at the Kirksville college, considerable time is devoted to the anatomy and physiology of the sympathetic nervous system. Atlhough the student has already become acquainted with the system in anatomy and physiology, in principles he learns that the visceral effects of spinal lesions are explained in terms of imbalance between the sympathetic and parasympathetic systems. Pottenger's text is recommended as one needs only to add the spinal lesion as another source of abnormal stimuli to make of it an excellent osteopathic text.

When it comes to suggesting improvements, I would only suggest "more of the same" and by that I mean making absolutely certain that the student has mastered the things presented in the course. That is a problem of pedagogy primarily. We still find an occasional upperclassman who wants his technic arranged on the basis of a special treatment for each condition. For example, one older woman wanted to know the "enuresis treatment."

We feel that the modern osteopathic physician should be able to diagnose, where possible, the underlying cause for a given condition, put the lesion into its place as an etiological factor, and institute treatment on an intelligent basis. I am sure that that is the goal in all colleges. If we were to present a series of special technics for each symptom, our graduates would never properly diagnose their cases and their treatment would be entirely empirical.

I wish to suggest one other possible danger. Regardless of the excellence of the course in principles and technic, if in the senior year, when so many subjects are taught by specialists in limited fields, those specialists either intentionally or otherwise slight the osteopathic lesion as an etiologic factor, the results are disastrous as far as turning out graduates with respect for, and confidence in, osteopathic therapy is concerned. Perhaps the proper treatment for a given case is surgical at the time, but there probably was a period in its history when properly applied osteopathic therapy would have saved the situation. Excepting congenital defects and accidents, we believe that is true, and our specialist-teachers can strengthen the work of the principles teacher by keeping such facts in mind and not failing to point them out to the students.

It has seemed to me that there is grave danger here, and college administrators should make sure that the fourth year is entirely one of inhibitions. The professors of surgery and other specialties should remember that the textbooks used are by nonosteopathic authors and if the student is to have the osteopathic concept woven into the course, the instructors must do it. Their efforts must never sound like mere lip-service, grudgingly given, but must carry the ring of sincerity. The impressions gained during the student's last year in college are too important to be left to chance.

Kirksville College of Osteopathy and Surgery.

American Osteopathic Society of Proctology

H. A. DUGLAY
President
Detroit

DIAGNOSIS OF CANCER OF THE RECTUM*

M. A. BOYES, D.O.
Parkersburg, W. Va.

Cancer affects the ends of the alimentary tract more often than any other part of it. Of all alimentary canal cancers, it has been estimated that one-third occur in the oral cavity, something less than a third between the oral cavity and the rectum and the remainder in the rectum. Men seem to be slightly more susceptible than women. It affects all ages, but the largest number occur between the ages of fifty and sixty.

Pathology.—There is just one type of cancer met with in the rectum—the adenocarcinoma. While the growth may be situated in any part of the rectum, the usual sites are (1) the rectosigmoidal junction; (2) the middle of the ampulla; and (3) the anal canal.

When situated at the rectosigmoidal junction, it completely encircles the bowel; when in the middle of the ampulla it usually begins on the posterior wall and spreads to the sides; when in the anal canal it is nearly always situated in the middle line anteriorly.

*Delivered before the Proctologic Section of the Thirty-Ninth A.O.A. Convention, Cleveland, 1935.

Even though there is only one type of cancer in the rectum, three clinical varieties may be recognized differing in physical characteristics and in degree of malignancy. These are called (*a*) the papilliferous carcinoma; (*b*) the common adenoid carcinoma; and (*c*) the colloid carcinoma.

The Papilliferous Carcinoma.—This has the appearance of a simple papilloma but at the base of the tumor the epithelial cells proliferate irregularly and penetrate the muscularis mucosa. It grows rapidly upon the surface and soon involves the circumference of the bowel. Because of its rapid growth, the lumen of the bowel is obstructed before infiltration of the muscular coat has progressed markedly. Hence these growths are not particularly malignant and ordinarily do not give rise to extramural metastases until they have existed for a considerable time. Where surface necrosis takes place, the retrorectal lymph glands may enlarge from septic absorption, but generally they are not the site of cancer deposit. For this reason papilliferous carcinomata seldom recur after removal.

Their exuberance of growth which causes symptoms of obstruction lead to early detection before extramural dissemination occurs. However, occasionally the infiltration progresses rapidly, making early diagnosis and treatment imperative.

The Adenoid Carcinoma.—This type forms the great majority of the cancers of the rectum. As usually seen they are sessile tumors involved in both the mucosa and submucosa. Generally the surface is flattened. It increases in size in all directions and while at first freely movable upon the muscular coat, it soon infiltrates and becomes adherent to it. It is impossible to tell how soon deep infiltration occurs but probably within a few months. With increased growth, surface disintegration occurs and an ulcer is formed which exhibits the well known malignant characteristics. The size of the tumor is not always indicative of its age. At times a small ulcerated tumor will have already invaded the retrorectal glands, thus indicating that extramural dissemination of cancer cells may take place while the growth is still in a clinically early stage of development. As the tumor spreads the ulcer deepens and assumes a crateriform appearance with nodular, everted and indurated edges. When the ulcer has extended nearly around the bowel, stenosis of the lumen is produced. Then the stage is reached when symptoms of impending obstruction make themselves manifest. The adenoid carcinoma gives rise to extramural metastases, which may be extensive, while the growth is yet in a clinically early stage, and therefore must always be considered as highly malignant. It will inevitably recur after any restricted operation.

Colloid or Mucoid Carcinoma.—This represents the preceding varieties when the degenerative stage has been reached, both the epithelial elements and the connective tissue undergoing mucinoid changes. It is extremely malignant and recurs after restricted operations.

THE SPREAD OF CANCER OF THE RECTUM

Cancer of the rectum may spread in three distinct ways: (*a*) Directly through the continuity of the tissue, (*b*) by way of the venous system and (*c*) by means of the lymphatic system.

(*a*) *Extension through the continuity of tissue.*—This takes place in two directions: (1) On the mucous surface of the bowel from its entire margin, and (2) through the bowel wall. The increase around the bowel wall is usually more rapid than the increase along the longitudinal axis. It has been found that while the circumference of the bowel may be covered entirely by the growth, the growth along the longitudinal axis is rarely over two inches. The normal mucous membrane is undermined by the growth extending to the muscularis mucosa. Surface extension is comparatively slow: thus, in the ampulla for instance, it will take about six months for the growth to travel around a quarter of the circumference in the average case. During the slow progress of surface extension, deep infiltration of the muscular coat of the bowel, which is more important, is taking place. While infiltration probably starts at the center of the

tumor, due to the unequal growth of surface extension, upon examination it may appear to be to one side of the center. Even though the center of the growth is opposite the prostate or the bladder, as the case may be, this does not mean that bowel penetration is occurring at that point and that actual invasion of the structure has taken place, even though the rectum may appear to be adherent to it.

Direct extension through the muscular coat seems to be a slow process. After penetrating the bowel wall the perirectal fat is invaded through which it reaches the fascia propria. As a general rule the invasion of the fascia propria means that the growth has existed long enough to encompass three-quarters of the circumference of the ampulla, thus indicating the duration of about eighteen months. The extension next invades the sacrum, uterus or vagina, prostate or bladder and the invasion of these structures would indicate a duration of at least a year's growth after the first objective symptoms. Hence it would appear that growth by direct invasion is a comparatively slow process and the invasion of neighboring structures does not take place until the growth of the mucous membrane has involved the greater part of the circumference of the bowel.

If direct growth through the fascia propria were the only method of extension, it is claimed that cure by surgical methods would be a comparatively simple matter, but unfortunately the growth is spreading simultaneously by other and more important avenues of extension leading even to distant spreading even when the primary growth is still in an early stage.

(*b*) *Extension by way of the venous system.*—At times cancer cells invade the veins of the rectum, and since the veins pass directly to the liver, metastases form generally in the right lobe of the liver. Two cases of such metastasis are reported in which primary growth of the rectum had involved less than half the circumference of the bowel and was therefore in a comparatively early stage of development. Spreading by the venous system is comparatively rare.

(*c*) *Extension by means of the lymphatic system.*—The usual spread of cancer cells is through the lymphatic channels, therefore a thorough knowledge of the lymphatic system is essential to prognosis.

ANATOMY OF THE LYMPHATICS OF THE RECTUM

The lymphatics of the rectum are usually described in three groups, intramural, intermediary, and extramural. A discussion of the anatomy of these three regions may be found in any standard anatomy text.

The extramural paths may be considered in three divisions, remembering of course that communications exist between them. (1) The zone of downward spread includes the perianal skin, the ischiorectal fat, and the external sphincter muscle. (2) The lateral zone of spread embraces the levator ani muscles, the coccygei muscles, the pelvic peritoneum, the prostate gland, the base of the bladder, the cervix uteri, and the base of the left broad ligament and the internal iliac glands. (3) The upward zone of spread embraces the retrorectal glands, the pelvic mesocolon in its entirety, the paracolic glands, the glands situated at the bifurcation of the left common iliac artery, and the median lumbar glands.

SYMPTOMS OF CANCER OF THE RECTUM

It is very necessary that the earliest symptoms of cancer of the rectum be recognized. It is insidious in its onset and may develop for as much as six months or more before the symptoms are sufficiently pronounced to induce the patient to seek relief. Before the preulcerative stage there are no objective symptoms. The length of this period is probably around six months or even a year. It is obvious, therefore, that some dependable early sign is of vital importance.

Authorities are pretty well agreed that a prolonged and well-marked attack of constipation in a person who has otherwise been healthy may be considered cause for a rectal examination with the expectation of finding cancer. In cases of cancer the constipation is followed in from three to six months by diarrhea which, though slight at first, gradually becomes more pronounced. The constipation is obstinate. Aperients have little effect beyond producing small ineffective movements and the voiding of flatus.

Colonic inertia is not associated with abdominal distension when growth obstructs the lumen of the bowel. A history of intractable constipation preceding the onset of objective symptoms is obtained so often that its presence justifies a thorough rectal examination.

In every case where the intractable constipation has been followed by a frequency of the action of the bowel in a person who has been enjoying good health, it should be borne in mind that in these cases the possibility of carcinoma is very great.

Objective symptoms soon make their appearance. Since the symptoms of cancerous growths of the rectum vary with the position and variety of the growth, the symptoms are considered separately. We shall discuss the symptoms of growths occurring (*a*) at the rectosigmoidal junction, (*b*) in the anal canal, and (*c*) in the ampulla.

(a) Symptoms of a Cancerous Growth at the Rectosigmoidal Junction.—Cancers in this location are similar to those occurring in the colon in that they rapidly involve the circumference of the bowel and produce obvious stenosis. Both the papilliferous and the adenoid varieties occur here and are followed by different trains of symptoms. While the adenoid variety rapidly involves the entire circumference of the bowel and causes a rigid stenosis, the first intimation of its presence is an acute attack of obstinate obstruction. Neither diarrhea nor bleeding precedes the onset of the obstruction. Abdominal distension, associated with visible peristalsis and intermittent colicky attacks denotes the completeness of the blockage.

On the other hand, the papilliferous variety gives rise to an excessive mucous secretion and causes diarrhea, which, though slight at first, tends to become more marked. Early in the course of the disease the diarrhea occurs only after meals or more particularly after the ingestion of warm drinks as tea or coffee, but as the stenosis progresses the diarrhea tends to become more frequent and may recur at short intervals. Bleeding is scant but may become copious if a necrotic area of the growth becomes detached. After a varying length of time the diarrhea ceases and obstruction supervenes, due either to impaction of a mass of feces above the stenosis or to intussusception of the stenosed segment of the bowel.

Tumors located at the rectosigmoidal junction are usually operable because they come under observation early on account of the symptoms produced by the stenosis.

(b) Symptoms of Cancer in the Anal Canal.—Cancers of the anal canal even when small give rise to great discomfort at an early date. Even after bowel movement there is a sensation of incomplete relief. Because they are constantly within the grip of the sphincters, the surface becomes eroded early and pain and bleeding are indicative of their presence. Pain occurs after every bowel movement and persists for some considerable length of time. Painful phenomena simulate those of fissure in ano and are often mistaken for them. Bleeding is scant but may become copious if the surface of the tumor becomes lacerated. Cancers of the anal canal are usually operable because their symptoms are of such urgency that they are diagnosed early. In many instances, however, the symptoms are mistaken for those of internal piles and fissure in ano and these cases are allowed to drag along until the bowel wall becomes perforated and ischiorectal suppuration supervenes.

(c) Symptoms of Carcinoma of the Ampulla.—Owing to the magnitude of the lumen of the ampulla and to the low sensitivity of the mucosa, a cancer may exist in the ampulla for some months before giving off any objective symptoms. But after a time surface erosion sets in and streaking of the feces with blood becomes the first objective symptom of

cancer of the ampulla. It is convenient to describe other symptoms of ampullary cancer with reference to the periods in which they appear as follows: (1) symptoms during the preulcerative stage, (2) symptoms during the progress of surface ulceration, (3) symptoms when the rectal wall has been penetrated and infiltration of the perirectal tissues has occurred, and (4) symptoms when the growth has extended beyond the fascia propria and implicated neighboring structures.

During the preulcerative stage objective symptoms are not evident. A papilliferous tumor, owing to the exuberance of its growth, rapidly fills the ampulla and may give a sensation of fullness in the rectum, or after the bowel movement a sense of incomplete evacuation. Under these circumstances a growth may be detected before any objective symptom is present as a copious discharge of mucus.

An adenoid cancer may exist in the ampulla for several months before causing any disturbance at all other than an attack of prolonged constipation due to inertia of the muscular wall of the bowel. Toward the end of the preulcerative stage the bowels move more frequently and this becomes more marked as time goes on. At first the stool is semisolid and the bowel moves after meals. Eventually the stools become liquid and tend to become more frequent. The movements occur almost entirely during the day. It is a rule that cancer in this early stage of growth is seldom seen because these symptoms attract so little attention. A patient may seek relief from diarrhea and in this way the cancer may be discovered. There is no pain, and aside from diarrhea no symptoms to cause the patient to become uneasy.

As soon as the surfaces become abraded, due either to the separation of necrotic portions or to the detachment of an exuberant mass, an ulcer forms and gives off symptoms of more definite and objective character. The ulcerating surface causes the rectum to become irritated and intolerant of contact with feces. The bowel may act frequently, a dozen or more times a day. Most of the stools are composed of mucus stained with blood. The movements occur almost entirely during the day. Blood in the stools becomes more marked as the ulcerating surface spreads, but bleeding is seldom profuse unless a portion of the growth becomes detached. Frequent attacks of free bleeding at this stage indicates the presence of coexistent internal piles. Mucus in excessive quantity is characteristic of the ulcerative stage and is probably due to proctitis about the ulcerative surface. The excessive mucus gives desire for frequent evacuation of the bowel. The blood and disintegrating portions of the ulcer mixed with the mucus gives rise to a peculiarly offensive odor which is characteristic of cancer of the rectum.

There is but little pain during the early stages. When the growth penetrates the rectal wall, local suppuration, either beneath the mucosa or in the perirectal fatty tissue, may occur, causing pain which may be severe in character, becoming more pronounced during the movement of the bowel. If the growth is located in the lower part of the ampulla and encroaches upon the anal canal, severe pain is felt during defecation and persists for several hours afterwards. Pain is absent when the growth is in the upper part of the ampulla, though there may be an aching sensation over the sacrum.

We have at this stage progressive loss of weight. If bleeding is excessive and especially if suppuration is profuse, emaciation ensues rapidly.

When the rectal wall has been penetrated and infiltration of the perirectal tissues has occurred, more than three-quarters of the circumference of the ampulla has been involved. The margins of the ulcer are irregular, nodular and everted. At this stage extramural metastases are found along the course of the superior hemorrhoidal vessels and probably also along the inferior mesenteric vessels as well. The veins are likely to become compressed due to metastatic deposits which results in impediment to the venous return and causes passive congestion of the growth. Bleeding is profuse both from digital examination and when the bowel moves. If a dilated vein becomes involved, large quantities of blood may be lost suddenly. The bowel moves frequently and the stools consist almost entirely of blood, mucus, and pus. If the quantity of pus passed is excessive, it indicates perirectal suppuration, which may cause deep-seated pelvic pain of continuous and distressing character. However, pain at this time is not a leading symptom and is limited to tenesmus when the bowels move. The patient continues to lose weight and if hemorrhage and suppuration be profuse the loss may be extreme.

About two years after the first objective signs, the growth has involved practically the whole circumference of the bowel, has extended beyond the fascia propria, and has implicated neighboring structures. Due partly to the circumferential involvement and partly to fixation of the diseased portion of the rectum to adjacent organs or to perirectal suppuration, it becomes more difficult to evacuate the contents of the bowel. The narrowed lumen becomes obstructed by impaction of a fecal mass, so that neither flatus or liquid stools can be voided. The abdomen is markedly distended and visible peristalsis of the colon is discernible. The obstructive attack, unless relieved by colostomy, usually lasts for three or four days or even a week and then ends with a profuse liquid evacuation. Alternating attacks of constipation and diarrhea then supervening herald the onset of ultimate absolute obstruction.

Pain at this stage is of two kinds: (1) abdominal, due to paroxysmal efforts of the colon to overcome the obstruction in the rectum; and (2) pelvic, resulting from extension of the growth into neighboring structures, especially the sacral plexus. Invasion of the sacral plexus causes pain over the sacrum and down the back of the thighs. Occasional attacks of bleeding are often profuse when a large vein becomes involved and if frequent, may cause profound anemia. Sepsis, disorders of digestion and want of sleep cause rapid emaciation. When neighboring organs are invaded, symptoms referable to these organs are noted. Extensive perirectal suppuration eventually leads to the formation of ischiorectal abscesses and fistulae, which materially increase the sufferings of the patient. Finally the appearance of edema of the lower extremities, ascites, and jaundice indicate the onset of general carcinomatosis.

I have gone into the symptomatology of cancer of the rectum in considerable detail because I want to emphasize the fact that the position of the neoplasm and its variety determine, to a great extent, the train of symptoms resulting therefrom. There seems to be a general impression that cancer of the rectum is followed by a definite train of symptoms consisting of the passage of blood and mucus through the anus and alternating attacks of constipation and diarrhea. Except in the case of tumors located at the rectosigmoidal junction, constipation and diarrhea occur after the growth has passed beyond the operable stage. Hence, if a diagnosis of cancer of the rectum be delayed until this symptom is present, many operable growths will be missed.

1024 Market St.

A.O.A. Memberships Increasing

The number of membership applications in this JOURNAL is approximately 50 per cent greater than the number published in April, 1935. As this is written, with four days to go, March, 1936, shows over 16 per cent more new members than the entire month of March last year. The total membership is 14 per cent higher than one year ago.

To climax these cheering bits of news: The present paid membership is the highest ever attained in the history of the A.O.A. It is steadily going up. But it is not enough to have a few more—or even a few score, or a few hundred. The work being done is far in excess of anything heretofore undertaken, and the necessity for such work is overwhelming.

Members have two tasks to perform. One is to interest nonmembers. The other is to renew their own membership promptly. All who pay now, before the dues notices are sent out, save money for themseves and their Association and save the time of their workers for more important tasks.

Enlist a new member and remit your own dues promptly.

American Osteopathic Society of Ophthalmology and Otolaryngology

G. H. MEYERS
President
Tulsa, Okla.

THE EFFECTS OF DEVIATION OF THE SEPTUM ON THE PHYSIOLOGY OF THE NOSE*

W. F. ROSSMAN, D.O.
Grove City, Pa.

It is unfortunate that the general features of intranasal function are so meagerly understood by the average practitioner, and it is unfortunate, too, that our textbooks, which we generally use for reference and study, contain so little upon the most necessary conditioning apparatus which guards over our lower respiratory tract. The average text on physiology or diseases of the nose discusses little of intranasal function other than olfaction. Olfaction is a retrograde function in man and one for which we have little need other than the smelling of food. The methods of estimating this function are poor, and procedures for increasing olfaction are unsatisfactory. This is probably due to the few requests from the anosmic and dysosmic for study and treatment. However, many factors enter into the impairment and loss of the sense of olfaction.

To understand better the functions of the nose, it is best to consider that the lungs or the lower respiratory tract are virtually no better prepared to effect their essential interchange of gases in the presence of what might be termed raw or nascent air than are the large intestines prepared to support the necessary absorption if supplied with only raw or undigested food. With this analogy I am trying to show that the upper respiratory tract—the nose and the pharynx with the paranasal air cells—is to the larynx, trachea and lungs, what the mouth, stomach, and duodenum, with the associated digestive glands, are to the remainder of the small intestines and the large intestines. The requirement of the former is to prepare air for consumption within the alveoli of the lungs and it is the function of the mouth, stomach and duodenum to prepare food for absorption.

A list of the major requirements of the nose may be listed thusly: *(a)* to conduct the air from without to the nasopharynx; *(b)* to conduct inspired air to the end organs of the olfactory nerves; *(c)* to add to or detract from degrees of moisture of the inspired air and to raise or lower its temperature; *(d)* to receive drainage from the lacrimal and the auditory systems as well as to ventilate the auditory apparatus; *(e)* to permit ventilation to, and drainage from, the paranasal air cells; *(f)* to arrest bacterial action by the bacteriostatic qualities of the nasal secretions and by the phagocytic properties of the lymphatic elements of Waldeyer's lymphatic ring; *(g)* to participate in that complex function called voice.

A properly, perfectly functioning nose, therefore, is one which performs all of the above functions without conscious notice. A normal physiological nose is, therefore, an anatomically correct one. I believe that the deflected septum is the one anatomical defect of the nose responsible for more nasal pathology than any other one thing.

Let us consider the nose as a conducting apparatus for air, inspired and expired. The cavity of the nose is grossly irregular in shape. It begins anteriorly with two small openings, the nares, in a roughly horizontal plane, guarded by many hairs of vibrissae. It expands rapidly into a cavity, the cavum nasi, with a central vertical anteroposterior partition, the septum. Consider it to have a horizontal floor, slightly concave from side to side. It has an arched roof, irregular, somewhat corrugated, lateral walls and posteriorly a pair of small orifices, the choanae, opening into the nasopharynx in a roughly vertical plane at right angles to the anteroposterior diameter. The central partition is the septum, serving to increase the contact surfaces within the cavity as well as to brace or to support the bony nasal ridge. The roof of the nasal cavity is conspicuously arched, sufficient to bring the nasal cavity in close proximity to the cranial fossa. It possesses at its uppermost level small openings through which the first cranial nerves together with their covering, the dura, project. The lateral walls of the nasal cavity are complicated and consist of a series of scroll-like or turbine-shaped bones, the concha, which are covered by highly specialized mucous membrane, the most important structure in the air conditioning process. Adjacent to the nasal cavity is a series of hollow bones, which constitute the paranasal air cells (they have their natural openings partly on the lateral walls and partly in the upper lateral aspect of the cavity, the so-called sphenoethmoidal recess), the lacrimal system, and the auditory system. Spread over the median and lateral surfaces of the arched roof are the end-organs of the olfactory nerve.

Considering olfaction, certain outstanding features are drawn to our attention. Inspired air is gently drawn into the nasal cavity, the direction of the flow is reflected upward as it passes through the nares striking the anterior tips of the turbinates. Coming through relatively small openings, the nares, and entering into a larger cavity its atmospheric pressure is reduced. The combined upward flow and reduced atmospheric pressure causes the inspired air to eddy over the anterior ends of the turbinates into the olfactory fissure and come in contact with the end organs of the olfactory nerves, thereby transmitting sensations to the cerebral centers. The air then continues on its way through the choanae into the nasopharynx. Expired air does not follow the same course as inspired air because it is reflected by the under surface of the sphenoid directly along the floor of the nose, under the turbinates, then through the nares. Thus it does not come in contact with the olfactory fissure. This peculiar anatomical arrangement makes it unnecessary for the olfactory system to serve both inspired and expired air and at the same time prevents the individual from smelling his own breath, for instance the odor of a lung abscess or pharyngeal ulceration. Again, when nature calls for an increased acuity of smell, the nostrils are voluntarily contracted by the compressor naris and depressor alae nasi muscles, causing a narrowing of the nares and a more marked negative pressure in the expanded nasal chamber is produced. This results in a greater tendency of inspired air to eddy into the olfactory fissure thereby increasing the acuity of smell. On the other hand, when great quantities of air are required, as in dyspnea in pneumonia, olfaction is disregarded and the muscles antagonistic to the former, the dilator naris, anterior and posterior, dilate the nares and air is permitted to rush through along the floor of the nasal cavity with no tendency to eddy the olfactory fissure.

The nose is the pioneer air-conditioning apparatus, warming or cooling inspired air and changing the humidity. Inspired air is seldom suitable for consumption within the lung alveoli. It must be cooled or warmed, moistened or dried, and must come in contact with the mucous membranes in such a fashion that these things are accomplished. The mucous membranes of the lateral nasal wall perform the air-conditioning function of the nose. The mucous membranes of the turbinates contain erectile tissue which regulates the size and thickness of the turbinate bodies. It has a profuse blood supply and a secretory system which develops a thin type of mucus and serum more volatile probably than any other secretion in the entire body. We are all familiar with the action of glandular products such as pituitrin and adrenalin on the erectile nasal membrane, as well as the rapid absorption into the system of these products. The same can be said of drugs such as cocaine. The rapid systemic responses which we witness from these substances demonstrate the function of absorption of moisture. Also the function of dispensing moisture is to be observed. The mucous membranes are normally moist. At the sites of the greatest amount of erectile tissue, there is the greatest vascular and glandular activity. This is found

*Delivered before the E.E.N.T. Section of the Thirty-Ninth A.O.A. Convention, Cleveland, 1935.

on the anterior tips of the inferior and middle turbinate and the posterior tip of the inferior turbinate. Stimulated by the presence of dry air, the vascularity is increased, an excess of volatile secretion produced, and the air is changed in humidity or moisture. The warming and cooling of inspired air is performed by the regulation of the changing vascularity of the mucous membrane.

The nose may be considered as a filtering apparatus for the inspired air, arresting particles of dust and other foreign material. The larger particles are arrested by the vibrissae or hairs at the nares, the smaller particles being arrested on the mucous membrane. This is accomplished by the degree of moisture furnished by the secretory glands of the mucous membranes. Ofttimes the reflex of sneezing is set up, thus clearing the nasal passages of irritating substances and forcing them out by a sudden blast of expired air. Also foreign particles are arrested on the posterior wall of the nasal cavity in a mucous like plug which gradually gravitates into the throat and is hawked out through the mouth. Again, irritating odors or dust are rapidly pushed out from the nasal cavity by the sudden engorgment of the nasal mucosa with blood and increased activity of the mucosal glands.

In the presence of a nasal floor which is normally concave anteroposteriorly and laterally the tendency is for mucus or discharges to gravitate to the floor, whence a moderate expiratory blast expels them. To evacuate intrasinus accumulations, a forced blast of air is necessary. This is accomplished by the air being forced rapidly over the ostium of the sinus producing a distinct negative pressure within the sinus cavity, thereby aspirating the secretions through the natural openings. This is more easily understood if the sinus be thought of as being the bowl of an atomizer and the forced expired air as being the air expelled from the suddenly compressed bulb of the atomizer In the case of the maxillary sinus we often hear it said that nature has made a mistake in placing the ostium near the top of the cavity instead of the bottom. I feel that nature has not made a mistake in this respect, because in a nose anatomically correct secretions which accumulate within the maxillary sinus will be blown from the nose as atomized droplets as the result of forced expiratory blasts.

Reference may be made to the drainage of the lacrimal and auditory systems. The former discharges into the nose under the tip of the inferior turbinate and the latter into the nasopharynx.

Probably one of the most important and least understood requirements of the nose is its ability to arrest bacterial action by the bacteriostatic qualities of the nasal secretions. This is readily recognized when we stop to think that in nasal operations practically no preoperative preparation is done upon the nasal mucosa as is done with other operative fields of the body. Nature has prepared the field of operation by the bacteriostatic qualities of the nasal secretions and the phagocytic properties of Waldeyer's lymphatic ring. Experiments have proved that strong antiseptics applied to the nasal mucosa lessen its bacterial protective properties.

Finally, the nose participates in that complex function called voice. The fact is that the hollow facial bones, by their free communication with the nasal passages, add resonance to the voice. This virtually completes our review of the normal anatomy and physiology of the nose.

I have set out to explain the effects which deviations of the nasal septum have upon these various intranasal functions and with our understanding of anatomy and physiology it would be a simple matter to reason out from a purely mechanical viewpoint any gross anatomical deviation from the normal. It is my opinion that a deflected or thickened nasal septum is probably the beginning of all intranasal pathology. As soon as a deflection occurs, nature begins to readjust the cavities to equalize the air currents passing through. Let us consider a buckling or deviation of the septum. This implies that there is a compensatory concavity on the opposite side. Deflection on the convex side is automatically diminished due to deflection and alteration of the air current from the olfactory region. The mucous membranes respond with a compensatory hypertrophy on the concave side and a compensatory atrophy on the convex side. Lateral wall function is necessarily interfered with, in that the humidifying and radiating surfaces become too tightly scrolled or atrophic from pressure, inspired and expired air is deviated or altered in its course. The conditioning of inspired air, of necessity, becomes diminished in its efficiency and various pharyngeal dysfunctions ensue. Hypertrophy of the turbinates and any ensuing obstruction results in alterations in the ventilation and drainage of the paranasal air cells, all of which predisposes to chronic pathology, varying from a simple hypertrophy of the lining membranes to chronic sepsis of these cells. Various chronic ear diseases result from the same causes.

Considering the foregoing statements, we may imagine the handicap which besets the therapeutic program of one who attempts to treat intranasal or pharyngeal diseases without having a knowledge of normal intranasal anatomy and physiology. We may imagine the futility of prescribing medicine, local applications, and osteopathic manipulative treatment to the nose and throat for the purpose of overcoming diseases of these structures. The first step in the treatment of intranasal disease is directed toward normalizing intranasal anatomy and physiology. There is almost an endless chain of complexes, reflexes, discomforts or actual disease extending from the tip of the nose to the pharynx, which, if not directly caused, are definitely predisposed to by simple deviations of the nasal septum.

Diagnosis and Treatment

MEMORY

F. M. STILL, D.O.
Macon, Mo.

Memory is a dual process dependent upon impressionability and retentiveness. It is subject to normal variations during the life of each individual. To the child everything is new and different, and with his alert senses a lasting impression is made upon the cortex of his brain, so knowledge acquired early in childhood is seldom lost. Later in life a new name or face is not such a novelty, so is more readily forgotten. With old age the special senses are dulled, apprehension is less clear, so commonplace things make a fleeting imprint on the mind and are hard to recall. For this reason it is much easier for the aged to dwell in the past, to talk of the good old days—the times which are most vivid in their minds.

Fatigue, inattention, pain, emotions, and drugs are a few of the many factors which may influence memory. Then, again, the will to forget often helps us to dismiss some disagreeable appointment, or some task we do not care to do.

Disorders of memory are always significant of disease or defect of the brain, and offer many valuable diagnostic aids which are useful if not always conclusive. The degree of memory involvement indicates the severity of the defect, or disease. Patients with hysteria, neurasthenia, and psychasthenia will complain bitterly of poor memories, but this will be disproved by close questioning.

The most common cause of defective memory is acquired or hereditary amentia, which is due to arrested cerebral development. In the most severe grade—the idiot—memory may be so lacking that speech is impossible. In the subnormal, the general memory is faulty.

The impressionability is impaired in manias, depressions, and dementia praecox. A patient with mania is so distractible that nothing is clearly impressed upon his mind. The depressed and dementia praecox patients are so introspective that their mental processes are almost inaccessible.

Disorders of retention are hyperamnesia, paramnesia and amnesia. Hyperamnesia is a morbid retentive memory

found in mild manias and paranoia, in which the patient remembers every minute detail of trivial happenings. Paramnesia is where a gap in a patient's memory is filled by romancing or fabricating, and this phantasy, when told, is accepted as being real. It is most often found in alcoholic paranoia, and Korsakoff's psychosis and less frequently in epileptic psychosis.

Amnesia, or loss of memory, is divided into three types: circumscribed, recent and general. In the circumscribed type, the loss of memory is not only for the immediate time of the occurrence of the lesion, but extends for a varying period prior to the lesion. This type of amnesia may antedate its cause by days, months, or years; it is then known as retrograde or retroactive amnesia. Circumscribed amnesia always follows disturbances of consciousness. The most common causes are deliriums from acute infections, poisons such as carbon gases, head injuries, intense emotional shocks, epileptic, hysterical and apoplectic attacks. Recent amnesia, when found without loss of consciousness, is caused by structural or toxic changes in the higher cortical neurons and nearly always means organic brain disease. Under this heading come the four organic dementias which comprise about 30 per cent of all mental patients: Senile dementia, where the loss of recent memory is early and progressively becomes more severe, often carrying the patient back to childhood; arteriosclerotic insanity, where the impairment is less marked; epileptic insanity, where the involvement may be of any degree; general paresis, where the recent memory is impaired, but the more remote memory also becomes involved fairly early in the course of the disease.

General amnesia is found in all the dementias when the deterioration is great.

MEMORY TESTS

Memory tests are not complicated and are easily given if the patient is able to answer questions. In the beginning, a detailed history of the patient is taken by asking numerous questions about his childhood, youth, family, schools attended, occupation, and own family if married. This is followed by other questions as to why he came for examination, who came with him, when he left home, etc. This is supplemented by asking the patient to give the alphabet, names of months, names of three European countries, the name of the President of United States, and three important holidays; by asking him to repeat five or six digits and to do sums in arithmetic mentally. It is also well to include questions of timely interest, on which the patient should be informed. Often the patient is asked to repeat a test story. The following adapted from Ziehen is typical.

"Good Girl Story—Once upon a time there was a girl whose father and mother were dead, and who was so poor that finally she had nothing but the clothes on her back and a little piece of bread in her hand. She was deserted by everybody but since she was good and honest she went into the world with confidence in God. As she went along she was met by a poor old man who said, 'Give me something to eat, I am hungry.' The girl gave him the piece of bread and went on farther. Soon afterward she encountered a little girl freezing and almost naked, who begged for her clothes. The good girl gave the child the warmest of her garments. Night came on, the good girl was tired, cold and hungry. She traveled into the woods and wandering off the road she knelt and prayed to God. As she knelt she saw the stars falling all about her, and when she looked she found they were many bright gold dollars."

This story is well prepared, and any gross memory defects will become apparent when the patient attempts to repeat or write it. It will also give him an opportunity to elaborate, which is characteristic of the manias.

The value of memory tests is twofold: First, the amount of involvement indicates the seriousness of the illness; second, the examination will often reveal the first symptoms of an impending mental breakdown. For this reason, if no other, mental tests assume an extreme importance, as a favorable outcome in most psychoses is dependent upon early treatment.

Still-Hildreth Osteopathic Sanatorium.

Current Medical Literature

Abstracted by R. E. Duffell, D.O.

Manipulative Treatment of Subacute and Chronic Fibrositis

It is T. Stacey Wilson's opinion that in many patients who suffer from chronic rheumatic discomfort, the pain is caused by the presence of fibrositic nodules and cords and that the destruction of these nodules and cords by forcible manipulative treatment will set the patient free, in a few minutes, from pain on movement which may have troubled him for years.

Wilson describes these fibrositic nodules and cords as agglutinated normal fibers of either fibrous or muscular tissue resulting from a preexistent inflammation. These fibrous deposits contain a large amount of toxin, presumably streptococcal in type, and when forcibly broken down this toxin is set free in the circulation. If too many are broken down at one time, the patient may suffer from a constitutional reaction similar in character to the reaction from vaccine therapy.

The aim of treatment is to tear asunder the agglutinated fibers of which the nodule consists by combining a very rapid to-and-fro rolling movement with pressure of the finger tips on the nodule against subadjacent bone. The author says that "In the case of the erector spinae and associated muscles fibrositic cords lie in the sulcus between the vertebral spines and the angles of the ribs, and their compression against the laminae of the vertebrae is possible and safe." Some nodules may have been in existence for several years and may be so hard that pressure from the finger tips is not adequate. In these cases Wilson breaks up the nodules by means of a sharp blow with a light wooden mallett properly padded. The author says, "The painfulness of this treatment might be expected to deter patients from undergoing it, but the relief given by the destruction of cords and nodules is so immediate and so great that they are not only willing but anxious for a continuance of the treatment."—Abstracted from The British Medical Journal of February 16, 1936, p. 298.

The Intervertebral Disc

Robert J. Joplin discusses the embryology, anatomy, physiology, and pathology of the intervertebral disc in *Surgery, Gynecology, and Obstetrics* for November, 1935. He says that "In attempting to analyze the etiological factors which make up the clinical orthopedic problem of this day and age, the spine plays a major role." The maximum effect of various stresses and strains of functional activity, as well as the physical shocks leading to mechanical injury, is upon the structures between the bodies of the vertebrae, the intervertebral discs.

In a description of the anatomy of the vertebral body, he calls attention to the lack of support of the disc from the bony rim ledge posteriorly, and that the concentric folds of fibrous tissue enclosing the nucleus pulposus are fewer and thinner here than anteriorly. It is also known that the posterior longitudinal ligament is a much weaker structure than the one anteriorly. Posterior displacements of the nucleus pulposus may or may not lead to serious neurological disturbances.

Under pathology the author describes thick and thin discs, displaced and degenerated discs. In diseases which decrease the strength of the spongy bone, pressure of the nucleus pulposus results in a bulging out of this structure into the adjoining vertebral bodies, as seen in osteoporosis

osteomalacia, cancer metastasis, and myeloma. Thin discs, however, are much more frequent than thick discs. "The decrease in water content of the disc which begins in the third and fourth decade, and all conditions which are collectively called degeneration, diminish the elasticity and make the disc thinner." The causes of prolapse, or disc displacement, may be listed as: (1) The nucleus pulposus follows embryological vessel channels which led into the disc. (2) Degeneration may cause tears in the cartilaginous plates of old people. (3) Certain pathological processes may exist in the vertebral bodies in such conditions as T.B., abscess formation, cancer metastasis, Paget's disease, etc.

In old persons degeneration of the disc is accompanied by a drying out and grinding up process of the gelatinous nucleus. This degeneration process cannot be detected roentgenologically unless deposits of calcium are present or there is a decrease in the height of the patient. The outermost periphery of the fibrous ring remains intact while large cavities are found in the interior. Occasionally concentric tears are found in the fibrous layers near the edge parallel to the rim ledge.

The author reports the interesting observations of Schmorl who noted that in hard working people, even in the aged, the discs were well preserved, while in people who had sedentary occupations, strangely enough, degenerative changes were found more often. Schmorl was forced to make the conclusion that "ordinary trauma in daily work plus the individual constitutional factors, which vary greatly in different individuals despite occupation or walk of life, play a more effective role than disease processes in producing these degenerative changes."

The Association of Intrathoracic Lesions with Bone and Joint Tuberculosis

Opinions vary widely regarding the frequency of intrathoracic tuberculous lesions and bone and joint tuberculosis. C. M. Meng and H. I. Chenn, Peiping, China, studied 100 patients suffering from bone and joint tuberculosis. They report in the *Journal of Bone and Joint Surgery* for July, 1935, that chest films showed pulmonary involvement in 47 per cent and intrathoracic lesions of varying degrees in 78 per cent. "In view of such a high percentage," the authors say, "more attention should be paid to intrathoracic infections as the probable primary foci of so-called surgical tuberculosis. A multiplicity of surgical lesions, however, does not necessarily bear any direct relationship to the extent of the existing pulmonary infection.

Current Osteopathic Literature

Abstracted by R. E. Duffell, D.O.

JOURNAL OF OSTEOPATHIC OPHTHALMOLOGY, RHINOLOGY, AND OTOLARYNGOLOGY

BETHLEHEM, PA.

17: No. 4 (Oct.-Nov.-Dec.), 1936

The Nasal Accessory Sinuses as Sites of Focal Infection. C. O. Sites, D.O., Hillsboro, Ohio.—p. 5.
Round Table Discussions at the Cleveland Convention.—p. 12.
Functional Hearing Tests. A. B. Crites, D.O., Kansas City, Mo.—p. 23.
Discussion of Dr. Crites' Paper. C. Paul Snyder, Philadelphia.—p. 29.
*Asthenopia and Its Treatment. William Otis Galbreath, D.O., Philadelphia.—p. 31.
Case Report. T. J. Ruddy, D.O., Los Angeles.—p. 35.
Extrinsic Factors in Deafness. Paul J. Dodge, D.O., Providence, R. I.—p. 37.

***Asthenopia and Its Treatment.**—Galbreath describes and gives the treatment for the three types of asthenopia, (1) accommodative, (2) muscular, (3) neurasthenic. The structural lesions which most frequently affect the eyes are located at the second and third cervical vertebrae, involving the superior cervical ganglion, since all sympathetic fibers passing to the orbit traverse the superior cervical ganglion, except possibly those which follow the course of the fifth nerve. Errors of refraction should be corrected, if they exist, in all types. Ocular exercises are beneficial in muscular asthenopia. Neurasthenic asthenopia usually is found in young women who suffer from anemia, neurasthenia, and menstrual disorders, although it may occur in either sex along with any debilitating disease.

THE OSTEOPATHIC BEACON
CHICAGO

February, 1936

*What Constitutes an Osteopathic Lesion? R. N. MacBain, D.O., Chicago.—p. 3.
Clinical Laboratory Diagnosis in Health and Disease. William Loos, D.O., Chicago.—p. 5.
Dedication Ceremony Earl Roland Hoskins Scholarship Cup and the Russel Rice Peckham Memorial Tablet.—p. 7.
Annual Postgraduate Course at C. C. O.—p. 7.
College News.—p. 8.
Perinephritic Abscess. From the Diagnostic Service of The Chicago Osteopathic Hospital. J. S. Denslow, D.O., Chicago.—p. 10.

*** What Constitutes an Osteopathic Lesion?**—In this, the second article of a series on osteopathic technic, MacBain discusses the pathology of the osteopathic lesion. He says a true lesion is pathologically dynamic, not static. For that reason it should be studied not only from the standpoint of structural malrelationship, but also from the position that it occupies as a source of perverted physiology—cellular changes in the articular and periarticular tissues and the functional reactions which accompany them brought about by irritation to the nervous system. There are some malrelationships of structure to which the body has become adapted, for instance in some cases of scoliosis. In these patients there may be no demonstrable perversion of internal function. They may suffer, however, from an osteopathic lesion produced in the curve or at the point of junction of two curves. It is the author's opinion that alteration of position of bony parts in a joint is "not the only nor even the most important part of the pathological process."

The cellular changes in the articular and periarticular tissues following the production of osteopathic lesions in animals have been studied at length and reported in osteopathic literature, but there is a serious lack of post mortem studies of osteopathic pathology in human subjects.

The functional pathology in the injured or strained tissue of the lesioned segment does not lend itself to post mortem study. Changes in tension and pressure can be found only in the living joint and constitute the dynamic elements in osteopathic pathology. If these altered tensions and pressure could be measured by instruments of precision as well as the alteration in the nerve impulses coming from the lesioned area, full scientific appreciation of the osteopathic lesion would be achieved.

CLINICAL OSTEOPATHY
LOS ANGELES

31: No. 8 (February), 1936

The Chronic Appendix. Walter W. Hopps, D.O., Los Angeles.—p. 5.
Jaundice. Dain L. Tasker, D.O., Los Angeles.—p. 9.
*Hyoid and Temporomandibular Technic. Bruce S. Collins, D.O., Santa Monica, Calif.—p. 10.
Pelvic Sepsis. Silas Williams, D.O., Santa Paula, Calif.—p. 11.
Book Notice.—p. 12.
Dr. Thorburn's Circuit Trip.—p. 13.
College Postgraduate Study.—p. 14.
Finances of Board Improve Under New Law.—p. 14.
New Treatment for Seasickness.—p. 14.
Editorials: New Malpractice Insurance Program Widely Commended. Exhilaration Sans Potation.—p. 15.

***Hyoid and Temporomandibular Technic.**—Tilting of the hyoid bone by muscular imbalance between the supra- and infrahyoid groups of muscles interferes with the function of the superior laryngeal branch of the vagus nerve. The direct result may be an increase or decrease in the amount of mucus secreted by glands of the larynx and a change of tension in the muscles of the vocal cords, both the glands and vocal cord muscles being supplied by the superior laryngeal nerve.

Bruce gives the technic for adjusting the titled hyoid as follows: Grasp the hyoid bone between the thumb and index finger and carry it gently "toward the side of least resistance several times, thus putting tension on the

contractured muscles and relaxing them." The author cautions against moving the hyoid bone from side to side rapidly, because of the danger of overstimulation of the sympathetic nervous system.

Lesions of the temporomandibular joint are found usually between the disc and the temporal bone and consist of restriction of movement. The chin will deviate toward the lesioned side when the patient is required to open his mouth widely, and he will complain of a "jumping" on the unaffected side.

Bruce gives the technic for correcting a temporomandibular lesion of the left side as follows: Stand behind and a little to the right of the patient. Encircle the patient's head with the left arm and forearm and hold firmly. The patient is then asked to open his jaw widely. Grasp the chin and right side of the mandible with the right hand. Holding it firmly, the patient is requested to move the jaw to the right against resistance. This causes an increase in tension of the external pterygoid muscle which pulls on the left articular disc and frees it.

THE COLLEGE JOURNAL, KANSAS CITY COLLEGE OF OSTEOPATHY AND SURGERY

20:33-64 (February), 1936

*Diphtheria. J. L. Jones, D.O., Kansas City, Mo.—p. 35.
Building a Practice. Pearl E. Thompson, D.O., St. Louis, Mo.—p. 39.
Anent the Appendix. Asa Willard, D.O., Missoula, Mont.—p. 45.
Diet in the Treatment of Tuberculosis. Annie G. Hedges, D.O., Kansas City, Mo.—p. 51.
The Renaissance of Knighthood. George J. Conley, D.O., Kansas City, Mo.—p. 52.
Gastrointestinal Surgery. George J. Conley, D.O., Kansas City, Mo.—p. 54.
Write a Prescription. Wallace M. Pearson, D.O., Kansas City, Mo.—p. 60.
Gastric Carcinoma. Yale Castlio, D.O., Kansas City, Mo.—p. 61.

*** Diphtheria.**—Jones says that the diagnosis of diphtheria is not easy. The clinical symptoms of diphtheria may be present, but the Klebs' Loeffler bacillus may not be found or vice versa. Nevertheless, a microscopic examination should be made in every doubtful case. If diphtheria is present, there usually is a typical membrane, but it may be so far down the throat as to be overlooked. Or it may be in some other structure, such as the nose, middle ear, external ear, on the lips, around the mouth, in the eye, in the stomach, and in the rectum. The appearance of the membrane is bright silver when seen early, later changing to gray, brown, or even black.

There are many complications of diphtheria, bronchopneumonia being the most common. Paralysis happens often in untreated cases. The paralyzing or degenerating effect of the powerful toxin on the heart muscle and on the nerves of the heart is most to be feared. Jones says that death is seldom if ever caused by choking as a result of a swollen membrane; therefore, intubation and tracheotomy should be discouraged.

The treatment of diphtheria is both general and specific. The general treatment includes isolation, absolute rest in bed, liquid diet (no milk), elimination with salines and enemas, and adequate ventilation in the sick room. Stimulants are seldom necessary and antipyretics should never be used. Gargling and swabbing the throat are of very little benefit to the patient. On the other hand, cold or hot (Numotizine) compresses will often give relief. It is not necessary that the membrane be stripped off, but if the demands of relatives and the patient himself are too insistent, this can be accomplished efficiently by blowing Papain (vegetable pepsin) or Caroid powder upon the membrane which will digest it.

The author says that there are two specifics for diphtheria: antitoxin and osteopathy. He prefers to use both. About 20 per cent of patients show some reaction to the injection of antitoxin by the development of fever or skin eruptions. This reaction, he says, is due to the foreign protein in the horse serum, and not to the antitoxin per se. One in about 10,000 who receive antitoxin will show alarming symptoms and one in about 60,000 will die. The other specific, osteopathic manipulative treatment, is free from the evil effects which sometimes attend the antitoxin. Jones says, "The great trouble with most osteopathic physicians, through a great sense of responsibility in handling this dread disease, is that they are more likely to overtreat than not to treat enough. One thorough treatment to the throat and neck is enough. Then daily attention to the spine and spleen combined with hygienic measures during the course of the disease will be sufficient."

Book Notices

THE OBSTETRIC PELVIS. By Herbert Thoms, M.D., F.A.C.S., Associate Professor of Obstetrics and Gynecology, The School of Medicine, Yale University. Cloth. Pp. 115 with 50 drawings and photographs by the author. Price, $2.50. Williams & Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore, Md., 1935.

The author feels sure that roentgen pelvimetry should form a part of the routine examination of every pregnant woman. He says that external pelvic measurement as an index of the size and shape of the pelvic inlet is inadequate and often incorrect. He discusses the mechanics of the pelvis, variations in the pelvis, different abnormalities, his own instrument for the measurement of the pelvic outlet and his own technic of pelvic roentgenometry. The book contains a considerable bibliography, including references to twenty articles by the author.

THE INTERNATIONAL MEDICAL ANNUAL: A Year Book of Treatment and Practitioner's Index. Edited by H. Letheby Tidy, M.A., M.D., F.R.C.P., and A. Rendle Short, M. D., B. S., B.Sc. Fifty-Third Year, 1935. Cloth. Price, $6. Pp. 522, with 124 illustrations, many of them colored. William Wood Company, Mount Royal and Guilford Avenues, Baltimore, 1935.

An excellent annual review of recent progress in medicine, surgery and the specialties. A large and competent staff reads and digests the world's literature covering the various fields, and each of its members writes to tell not only what methods and ideas are new, but also which he considers good and well proved.

As in previous years, there are things of particular interest to the osteopathic physician such as the discussion with numerous illustrations of spondylolisthesis. There are nearly seven pages on "medicine in an industrial state," and other equally interesting sections.

GROWING SUPERIOR CHILDREN. By Newton Kugelmass, M.D., Ph.D., Sc.D., attending pediatrician of the Broad Street Hospital, French Hospital, and Heckscher Institute, New York; consulting pediatrician of the Lynn Memorial and Monmouth Memorial Hospitals, New Jersey; Author of "The Story of Infancy," "Clinical Nutrition and Feeding in Infancy and Childhood." Cloth. Price $3.50. Pp. 568, with illustrations. D. Appleton-Century Company, 135 W. 32nd St., New York City, 1935.

This book represents an attempt to present the child as a developing organism strongly influenced by its environment. The physical, intellectual, emotional and social aspects of this development are considered as parts of a whole rather than as entirely separate phases. But the child itself is not considered in the abstract or taken on the basis of the average, but each individually.

The book is directed to parents with the expectation that proper attention to wholesome development and superior care will produce superior children, and the advice on the whole is not only quite specific but good. Feeding schedules, diets, habit training, etc. are discussed in detail.

A B C OF THE ENDOCRINES. By Jennie Gregory, M.S. Foreword by Carl G. Hartman, Department of Embryology, Carnegie Institution of Washington. Cloth, Price, $3. Pp. 126. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore, 1935.

This book is made up entirely of charts and graphs with the exception of the preface, glossary and bibliography. It is an attempt to present a simple and precise review of endocrinology for the intelligent layman as well as for the student and general practitioner. It

compresses a remarkable amount of material into a few pages, but this fact of course makes it impossible to differentiate clearly between proved fact and more or less acknowledged theory. Thus it should be used in connection with and perhaps more or less as a guide to other sources of information.

THE RADIOLOGY OF BONES AND JOINTS. By James F. Brailsford, M.D., M.R.C.S., Hunterian Professor, Royal College of Surgeons, England, 1934-5. Awarded the Robert Jones Gold Medal and Prize of the British Orthopaedic Association, 1927. Cloth. Pp. 571, with 340 Illustrations. Second edition. Price, $9. William Wood & Company, Mount Royal and Guilford Avenues, Baltimore, Md., 1935.

This is a valuable and useful textbook in which the second edition followed the first in less than two years. It opens with a discussion of the skeleton at birth, factors influencing rate of ossification, congenital abnormalities, etc., and then takes up the body systematically, beginning with the hand and wrist, the lower ends of the arm bones, the elbow joints, the shoulder, then the lower extremities in the same way, then the pelvis, the spine, the thorax, the head, and dental radiography. There is a chapter on bone changes in systemic and localized disease.

State Boards

Arizona

Charles C. Bradbury, Phoenix, is vice president of the Arizona board, his term expiring January 1, 1937.

Colorado

C. R. Starks, Denver, was recently appointed to fill the unexpired term of D. L. Clark. The term expires April 12, 1939.

Illinois

Oliver C. Foreman, 58 E. Washington St., Chicago, reports that the Illinois State Board examinations will be held April 7, 8 and 9 in Chicago.

Iowa

The Iowa Board of Examiners in the Basic Sciences will conduct a written examination at the State Capitol, Des Moines, on April 14 at 9 a.m. Address all communications to E. A. Benbrook, Secretary, Iowa Basic Science Board, c/o Iowa State College, Ames.

Kansas

K. A. Bush, Harper, has recently been elected president of the Kansas State Board of Osteopathic Examination and Registration.

Kentucky

For regulations recently adopted by the State Board of Health, see Legal and Legislative column, p. 389.

Vermont

The next examinations of the Vermont Board of Osteopathic Examination and Registration will be held on June 18 and 19 at the State House in Montpelier. Application may be made to the secretary, R. L. Martin, 24 Elm St., Montpelier.

West Virginia

The next meeting of the West Virginia Board of Osteopathy will be held on June 15 and 16 at the offices of Robert B. Thomas, 613 Union Bank Bldg., Huntington. Application blanks may be secured from the secretary, Guy E. Morris, 542 Empire Bank Bldg., Clarksburg. Applications should be filed with the secretary not later than June 8.

Conventions and Meetings

Announcements

American College of Osteopathic Obstetricians, New York City, July 18.

American College of Osteopathic Surgeons, Denver.

American Osteopathic Association, Waldorf-Astoria Hotel, New York City, July 20-24. Program chairman, George W. Riley, New York City.

American Osteopathic Society of Ophthalmology and Otolaryngology, Waldorf-Astoria Hotel, New York City, July 16-18. Convention chairman, J. M. Watters, Newark, N. J.

American Osteopathic Society of Proctology, New York City, July 20-24. Program chairman, Collin Brooke, St. Louis, Mo.

A. T. Still Osteopathic Foundation and Research Institute, New York City, July 20.

Arizona state convention, May.

Arkansas state convention, Little Rock, May.

Associated Colleges of Osteopathy, New York City, July 17.

Associated Hospitals of Osteopathy, New York City, July 21.

California state convention, Pasadena, June 22-26. Program chairman, P. T. Collinge, Los Angeles.

Colorado state convention, Denver, June or July. Program chairman, F. E. Johnson, Colorado Springs.

Florida state convention, Hotel Clarendon, Daytona Beach, April 24, 25. Program chairman, L. A. Robinson, Daytona Beach.

Georgia state convention, Columbus, June. Program chairman, M. W. Henderson, Atlanta.

Illinois state convention, Hotel LaSalle, Chicago, May 17-19. General convention chairman, Fred Shain, Chicago.

Indiana state convention, Hotel Lincoln, Indianapolis, October 7, 8. Program chairman, Paul van B. Allen, Indianapolis.

International Society of Osteopathic Ophthalmology and Otolaryngology, Philadelphia, July 13-15.

Iowa state convention, Hotel Savery, Des Moines, May 14, 15. Program chairman, W. C. Chappell, Mason City.

Kansas state convention, Salina, October 13-15. Program chairman, Lawton M. Hanna, Clay Center.

Kentucky state convention, Brown Hotel, Louisville, October 29, 30. Program chairman, O. C. Robertson, Owensboro.

Louisiana state semiannual convention, Alexandria, second week of April. Program chairman, E. A. Stanton, Crowley.

Middle Atlantic States convention, Richmond, Va.

Minnesota state convention, Hotel Radisson, Minneapolis, May 1, 2. Program chairman, Grace Meyers, Minneapolis.

Missouri state convention, Hotel Statler, St. Louis, October 16-18. Program chairman, Collin Brooke, St. Louis.

Montana state convention, Miles City, September. Program chairmen, F. L. Anderson and J. R. Mathis, both of Miles City.

National Board of Examiners for Osteopathic Physicians and Surgeons, New York City, July 19.

Nebraska state convention, Omaha, September.

New England Osteopathic Association, Biltmore Hotel, Providence, R. I., May 1, 2. Program chairman, Gervase C. Flick, Jamaica Plain, Boston, Mass.

New Hampshire state convention, Manchester, April 18. Program chairmen, Osmond R. Strong, Concord, and Kenneth Steady, Portsmouth.

New Jersey state convention, Berkeley-Carteret, Ashley Park, May 9. Program chairman, Harold L. Colburn, Montclair.

New Mexico semiannual meeting, Raton, April or May. Program chairman, Caroline C. McCune, Santa Fe.

New York state convention, Niagara Falls, October.

North Carolina state convention, Southern Pines, May 9. Program chairman, E. W. Bush, Southern Pines.

Ohio state convention, Hotel Gibson, Cincinnati, May 17-19. General convention chairman, C. A. Ross, Cincinnati.

Oklahoma state convention, Tulsa, April 20, 21.

Ontario convention, Hamilton, May. Program chairman, Norman W. Rutledge, Chatham.

Oregon state convention, Medford.

Osteopathic Women's National Association, New York City, the week of July 19. General program chairman, Mary Giddings, Cleveland.

South Dakota, Deadwood.

Texas state convention, Dallas, June 4-6. Program chairman, Chester L. Farquharson, Houston.

Utah state convention, Salt Lake City, June.

Vermont state convention, Montpelier, October. Program chairman, H. I. Slocum, Middlebury.

Virginia semiannual meeting, Richmond, May 2. Program chairman, F. D. Swope, Alexandria.

Washington state convention, Walla Walla, late May or early June.

West Virginia state convention, Wheeling, June. Program chairman, Albert Graham, Wheeling.

Wisconsin state convention, Plankinton Hotel, Milwaukee, April 3-5. Program chairman, J. R. Jackson, Milwaukee.

Official and Affiliated Organizations

ARKANSAS

Twin City Osteopathic Association

A meeting was held on March 14. A round table discussion on "Glands of Internal Secretion" was conducted by Charles A. Champlin, Hope and W. C. Harper, Magnolia.

The following officers were elected: President, D. A. English, Texarkana, Ark.; vice president, Dr. Champlin; secretary-treasurer, Mabel Rape, Texarkana, Tex., reelected; librarian and publicity, A. Ross McKinney, Jr., Texarkana, Tex.; program, Dr. Harper; student recruiting, Etta Champlin, Hope; statistician, R. M. Mitchell, Texarkana, Tex.

CALIFORNIA

East Bay Branch

At a meeting held on February 26 at Alameda, artificial fever was discussed. Edward I. Kushner, Oakland, spoke on his experience. Mrs. Kushner told of her recent trip East where she studied at some of the large fever clinics, and Roger A. Peters, Berkeley, discussed the use of the electrocardiagram.

Hollywood Osteopathic Luncheon Club

At a meeting held on February 11, Charles A. Blind, Los Angeles, discussed the nonoperative treatment of cataract.

Los Angeles Branch

At a meeting held on March 9, the following program was presented by the Southern California Division of the O.W.N.A.: "Health Work of the Los Angeles District of the Federation of Women's Clubs," Ada D. Ames, Los Angeles; "Recent Developments in Science," Mrs. Anne Leidendeter, Head of the Department of Science at the Los Angeles Public Library.

Los Angeles Osteopathic Surgical Society

The present officers are as follows: President, Cyril B. Wright; vice president, Andrew R. M. Gordon; secretary-treasurer, Robert Rough, all of Los Angeles. The following committee chairmen have been appointed: Membership, J. Gordon Hatfield; professional education, Dr. Gordon; clinics, F. S. Chambers; publicity, T. J. Ruddy, all of Los Angeles.

Oakland Osteopathic Luncheon Club

Meetings were held on February 18 and 25, and March 3, 10 and 17.

Pasadena Branch

A meeting was held on February 20. Lewis C. Chandler, Los Angeles, spoke on "Colitis." Preliminary plans were made for the thirty-fifth annual state convention to be held in Pasadena, June 22-26.

Sacramento Valley Branch

At a meeting held on March 10, Una W. Cary, Sacramento, discussed a new surgical procedure.

San Diego Branch

At a meeting held on February 7, Hoyt F. Martin, South Pasadena, spoke on "Eye, Ear, Nose and Throat Problems of the General Practitioner."

San Fernando Valley Branch

At a meeting held on February 11 at North Hollywood, Mr. Milton H. Berry was the principal speaker. Motion pictures were shown.

COLORADO

State Association

The following program was presented at the March 21 meeting: "Present and Future of Osteopathic Education," L. van H. Gerdine, Los Angeles; "The Value of Osteopathic Films," including a demonstration, H. L. Will, Colorado Springs; "Public Speaking—How to Get What You Want," C. C. Reid, Denver; "The Status of Osteopathic Insurance," H. I. Magoun, Denver; "Beacon Lights on the Political Horizon," G. W. Bumpus, Denver.

FLORIDA

Volusia County Osteopathic Association

A meeting was held on March 4 at Daytona Beach at which time further plans for the state convention were made.

The next meeting is scheduled to be held on April 7 at Deland.

IDAHO

Boise Valley Osteopathic Society

A meeting was held in Boise on February 20.

ILLINOIS

State Association

The thirty-seventh annual convention will be held on May 17, 18, and 19 at the La Salle Hotel, Chicago. Some of the speakers who will appear on the professional program are as follows: C. E. Cryer, El Paso, "Requirements for Success in General Practice"; A. H. Miller, Rockford, "Pathology of the Vertebral Lesion"; H. F. Garfield, Danville, "Fibrous Ankylosis"; H. H. Halladay, Galesburg, "Roentgenology"; John Peck, Kankakee, "Addison's Disease"; C. E. Pollard, Champaign, "Have You What It Takes?"; W. S. Fuller, Bloomington, "Casts"; R. B. Hammond, Rockford, "Friendly Fever and the Value of the Miller Lymphatic Pump"; Fred B. DeGroot, Rock Island, "The Breathing Function"; E. C. Andrews, Ottawa, "Thermogenic Therapy"; Millicent Graves, LaGrange, "Dietetics".

Chicago Osteopathic Association

The West Suburban Osteopathic Society sponsored the program held at the Hotel LaSalle on March 5, with Garfield Inwood, Chicago, as the principal speaker.

Chicago—North Shore Osteopathic Society

George H. Smith, Evanston, reports that a meeting was held on March 6. A. L. Stockebrand, Evanston, talked on "Biochemistry of Inorganic Salts."

At a meeting held on March 20, Dr. Smith spoke on "Fractures."

Chicago—South Side Osteopathic Physicians' Society

At a meeting on February 27, round table discussions were conducted. Mr. Roy Olin, an attorney, spoke on "Practical Politics."

Chicago—West Suburban Osteopathic Society

(See Chicago Osteopathic Association)

Illinois Valley Osteopathic Society

The meeting scheduled to be held on February 6 was cancelled.

The March meeting was held on the 5th. Kenneth R. M. Thompson, Chicago, spoke on "Neurological Diagnosis." A round table discussion was conducted by R. V. Herbold, LaSalle.

Third District Illinois Osteopathic Association

A meeting was held on March 12 at Monmouth. E. P. Wright, Belvidere, spoke on "Endocrine Gland Conditions." This meeting was originally planned for January but was postponed because of bad weather.

Sixth District Illinois Osteopathic Association

The officers were reported in THE JOURNAL for March. The following committee chairmen have been appointed: Membership, Herbert B. Somerville, Decatur; professional education, C. E. Tilley, Lincoln; hospitals, C. L. brockmeier, Edwardsville; censorship, Martha E. Scaife, Springfield; student recruiting, Theron Leroy Stein, Taylorville; public health and education, Nelle Lowe Parker, Carlinville; industrial and institutional service, J. W. Roberts, Roodhouse; clinics, Pauline R. Mantle, Springfield; publicity, L. Alice Oliphant, Virginia; statistics, L. K. Hallock, Jacksonville; convention program, Charles E. Kalb, Springfield; convention arrangements, J. J. Pleak, Springfield; legislation, Charles O. Casey, Decatur; professional development, L. R. Morgan, Alton; displays at fairs and expositions, Mabel Tobin, Springfield.

INDIANA

Northeastern Indiana Osteopathic Association

The February meeting was held on the 19th at Fort Wayne.

Rufus Von Gunten, Berne, reports that the March meeting was held on the 11th, also at Fort Wayne. The following officers were elected: President, Dale G. Treadwell, Auburn; vice president, John D. Hall, Kendallville; secretary-treasurer, Dr. Von Gunten, reelected. The following committee chairmen were appointed: Program, L. E. Browne; membership, C. W. Dygert; news correspondent, Wesley Warner, all of Fort Wayne.

Northern Indiana Osteopathic Association

At a meeting held on February 19 at South Bend, Harold E. Kerr, Chicago, talked on "Treatment of Common Ear, Nose and Throat Conditions."

Second District Indiana Osteopathic Association

The meeting scheduled to be held at Connersville in February was postponed until March 18.

IOWA

Lyceum Circuit

A. D. Becker, Des Moines, and F. A. Gordon, Marshalltown, made a speaking tour of the Iowa districts as follows: March 16, district 4, at Hampton; March 17,

district 1, at Clinton; March 18, district 3, at Ottumwa; March 23, district 6, at Ames; March 24, district 5, at Sioux City; March 25, district 2, at Council Bluffs.

First District Iowa Osteopathic Association

C. K. Risser, Maquoketa, reports that a meeting was held on March 17 at Clinton. This was held in connection with the Iowa lyceum circuit and the following program was presented: "Applied Osteopathic Principles," and "Treatment of Neuritis," A. D. Becker, Des Moines; "State Affairs," F. A. Gordon, Marshalltown; "Up to the Minute Colonics," Holcomb Jordan, Davenport.

Second District Iowa Osteopathic Society of Physicians and Surgeons

The following program was scheduled to be presented on March 25 at Council Bluffs: "Elliott Treatment," W. E. Heinlen, Elliott; "Cardiovascular Renal Hypertension," A. D. Becker, Des Moines; "Office Surgery," T. A. Kapfer, Greenfield; "Association," F. A. Gordon, Marshalltown; "Applied Osteopathic Principles," Dr. Becker; "Radiograph Interpretation of Gastrointestinal Tract," Anton Kani, Omaha.

Third District Iowa Osteopathic Association

A meeting was held on March 18 at Ottumwa in connection with the Iowa lyceum circuit. A. D. Becker, Des Moines, spoke on "Cardiac Arrhythmias" and "Classification of Heart Diseases"; F. A. Gordon, Marshalltown, on "State Affairs."

KANSAS

Central Kansas Association of Osteopathic Physicians and Surgeons

A student recruiting meeting was held with the North Central Society of Osteopathic Physicians and Surgeons on March 13 at Concordia. Wallace M. Pearson, Kansas City, Mo., spoke on "Osteopathy as a Profession," "Osteopathic Findings and Competitive Medicine," "The Use of the X-Ray for Postural Diagnosis." William S. Childs, Salina, talked on "Osteopathy as a Profession."

Eastern Kansas Osteopathic Society

(See also Verdigris Valley Osteopathic Association.)

H. J. Johnson, Waverly, reports that the regular monthly meeting was held on March 10 at Ottawa. G. N. Gillum, Kansas City, Mo., spoke on "Diagnosis and Treatment of Chorea." J. F. Dinkler, Emporia, discussed legislative problems.

North Central Society of Osteopathic Physicians and Surgeons

(See also Central Kansas Association of Osteopathic Physicians and Surgeons.)

A meeting was held on February 13 at Cuba. I. E. Nickell, Smith Center, was the principal speaker.

Northwest Kansas Society of Osteopathic Physicians and Surgeons

At the January 12 meeting held at Colby, I. E. Nickell, Smith Center, discussed professional affairs. The following officers were elected: President, J. A. Rummel, Oberlin; vice president, O. O. Taylor, Oberlin; secretary-treasurer, Ralph H. Jain, Colby. E. M. Davis, Colby, and C. S. Percival, Hoxie, make up the program committee.

The February meeting was held on the 9th at Colby. Case histories were presented.

Shawnee County Osteopathic Association

Genevra E. Leader, Topeka, reports that a dinner was given on February 20 in honor of the members of the Kansas State Board of Osteopathic Examination and Registration who were holding their semiannual meeting in Topeka at this time. E. C. Sexton, Osage City, read a paper on "Unrecognized Neurasthenia—A Factor in Errors of Diagnosis."

The March meeting was held on the 5th.

Wallace M. Pearson, Kansas City, Mo., is scheduled to be the principal speaker at the April meeting.

South Central Kansas Osteopathic Society

A. L. Quest, Augusta, reports that at a meeting held on February 27 at Winfield the following program was presented: "Acute Chest Diseases," Earl C. Logsdon, Sedan; "Biological Basis of Osteopathy," J. O. Strother, Winfield.

Southern Kansas Osteopathic Association

C. C. Matheny, Anthony, reports that a meeting was held at Cunningham in March. K. A. Bush, Harper, spoke on "Surgical Technic."

It is planned to have a student recruiting meeting on or near April 14. It is also planned to have Wallace M. Pearson, Kansas City, Mo., as the principal speaker.

Verdigris Valley Osteopathic Association

J. R. Cunningham, Cherryvale, reports that a meeting was held on February 21 at Neodesha. C. A. Tedrick, Wichita, spoke on "Diagnosis and Treatment of the Common Diseases of the Hematopoietic System."

The March meeting was held on the 19th at Fredonia with I. E. Nickell, Smith Center, as the principal speaker.

A joint meeting with the Eastern Kansas Osteopathic Society is scheduled to be held on April 16 at Iola. A. D. Becker and H. V. Halladay, both of Des Moines, are to be the principal speakers.

Wyandotte County Osteopathic Association

At a meeting held on February 11, the following officers were elected: President, K. J. Davis; vice president, Hester Sappenfield; secretary, Minerva B. Brink; treasurer, C. M. Butts, all of Kansas City, Kans.

The following committeemen have been appointed: Program, J. Swart; membership, Dr. Swart and G. Hayden Houston; professional education, Minerva B. Brink and G. L. Lewis; hospitals, Dr. Butts and F. J. Jones; censorship, Karl M. Pearson and Dr. Swart; student recruiting and public health and education, Hester Sappenfield and Dr. Swart; publicity, Drs. Sappenfield and Brink; legislation, Drs. Pearson and Houston, all of Kansas City.

KENTUCKY

Jefferson County Osteopathic Society

A meeting was held on March 13. Stanley G. Bandeen, Louisville, spoke on "The Osteopathic Lesion."

MAINE

Eastern Maine Osteopathic Society

A meeting was held on February 13 at Bangor. Arthur Grant Dearborn, Bangor, spoke on the surgery of the hand.

MASSACHUSETTS

Connecticut Valley Osteopathic Association

Victor Manley, West Springfield, reports that the present officers are: President, Ward C. Bryant, Greenfield; vice president, Dr. Manley; secretary-treasurer, Bertha Miller, Springfield.

The following committee chairmen were appointed on December 17: Professional development, Alexander B. Russell, Springfield; education, George T. Smith, Holyoke; membership, George A. Haswell, Northampton; hospitals, Ralph D. Head, Pittsfield; ethics, M. T. Mayes, Springfield; statistics, Anne M. Fielding, Greenfield; child welfare, Maude G. Williams, Northampton; public relations, Charles W. Wood, Holyoke; publicity, Dr. Manley; student campaign, Gordon W. Barrett, Pittsfield; public health, Fred A. Bragg, Springfield; legislation, institutions, and industrial, Philip S. Taylor, Springfield; program, Paul M. Brose, Holyoke.

At a meeting held on February 18, Dr. Taylor spoke on pneumonia.

At the March meeting scheduled to be held on the 12th, Grace C. FitzGibbon, Holyoke, was to speak on "The Adolescent Girl."

Worcester District Osteopathic Society

The March meeting was held on the 4th. Robert H. Veitch, Medford, spoke on preventing middle ear deafness.

MICHIGAN

Kent County Society of Osteopathic Physicians and Surgeons

The present officers are: President, E. M. Schaeffer; vice president, John J. Gregory; secretary, Winifred McLravy; treasurer, P. M. Wells, all of Grand Rapids. The following committee chairmen have been elected: Membership, Dr. Wells; professional education, R. T. Lustig; hospitals, Dr. Schaeffer; censorship, executive committee; student recruiting, W. H. Bethune; public health and education, Dr. Schaeffer; industrial and institutional service, Dr. Lustig; clinics, Jeannette Van Allsburg and Ellen Van Allsburg; publicity, Dr. McLravy; legislative, Bruce S. Vowles; professional development, Dr. Lustig; displays at fairs and expositions, H. A. MacNaughton, all of Grand Rapids.

Southwestern Michigan Osteopathic Association

Ralph W. Thomas, Plainwell, reports that at the January meeting held at Kalamazoo, John P. Wood, Detroit, C. Burton Stevens, Detroit, and Claude B. Roote, Greenville, were guest speakers.

MINNESOTA

Minneapolis Osteopathic Society

E. S. Ervin, Minneapolis, reports that a meeting was held on March 4. F. M. Shoush, Jr., Minneapolis, spoke on "Socialized Medicine."

MISSOURI

Kansas City Society of Osteopathic Physicians and Surgeons

Hazel A. Clark reports that the February meeting was held on the 17th. Mr. Paul Buzard spoke in behalf of the American Legion; Herbert Lipman talked on lymphatic treatment and demonstrated his technic; N. H. Hines reported on the list of contagious diseases which had been reported to the city health office during the month; G. N. Gillum, Kansas City, spoke on encephalitis and illustrated pathological findings by means of a sectioned human brain.

Northeast Missouri Osteopathic Association

A meeting was held on March 12 at La Plata. H. P. Hoyle, Macon, spoke on the fundamentals of a neurological examination, and Lane Cross, Macon, on the recent epidemic of scarlet fever and streptococcic sore throat. O. P. Grow, Green City, Perry Borton, Kahoka, and O. B. Griffin, La Plata, told of their experiences in carrying on their practices during the recent severe weather.

MONTANA

Southern District Osteopathic Association

The following officers were elected on January 19: President, W. E. Dean, Bozeman; secretary, W. C. Dawes, Bozeman.

On February 16 a banquet and meeting was held at Livingston.

The March meeting was scheduled to be held at Three Forks.

NEBRASKA

Southeast Nebraska Osteopathic Association

The following are the newly elected officers: President, H. C. Salmen, Tecumseh; vice president, H. A. Rosenau, Geneva; secretary, I. N. Morgan, Steele City.

The February meeting was held on the 13th at Fairbury. E. L. Ingham, Kansas City, Mo., was the principal speaker.

NEW JERSEY

Atlantic and Cape May County Osteopathic Society

The Atlantic County Osteopathic Society reorganized on February 29, changing the name to the Atlantic and Cape May County Osteopathic Society, and including Atlantic and Cape May counties.

The following officers were elected: President, John E. Devine, Ocean City; vice president, J. S. Logue, Atlantic City; treasurer, Lewis L. Walter, Atlantic City; secretary, Carl Jay Isman, Atlantic City. F. C. Sinagra, Atlantic City, was appointed director of public affairs.

The March meeting was scheduled to be held on the 28th. H. Y. Kiser, Philadelphia, was to speak on the diagnosis and treatment of fractures, illustrated by motion pictures.

Bergen County Osteopathic Society

A meeting was held on March 3 at Englewood. George S. Gardner, Newark, spoke on "The Diagnosis and Treatment of Neoplasms of the Spine," and Walter H. Miller, Bloomfield, on "The Philadelphia Postgraduate Course."

Essex County Osteopathic Society

The February meeting was cancelled because of bad weather.

A. W. Brice, Glen Ridge, reports that a meeting was held on March 17 at East Orange. W. H. Wiggins, Boonton, discussed "The Commoner Fractures."

Hudson County Osteopathic Society

A meeting was held on March 4 at Bayonne. F. P. Manchester, Bayonne, spoke on acute rheumatic fever.

The next regular meeting was cancelled in favor of the convention of the Eastern Osteopathic Association which was held on March 28 and 29 at New York City.

NEW YORK

Central New York Osteopathic Society

At the February meeting Allen S. Prescott, Syracuse, spoke on the prevention of colds.

Hudson River North Osteopathic Society

Mary E. Stearns, Saratoga, reports that a meeting was held on March 7 at Waterford. Melvin B. Hasbrouck, Albany, discussed the new nomenclature which appeared in THE JOURNAL for January, and A. W. Bailey, Schenectady, spoke on "The Present Extent of Socialized Medicine in New York City."

Nassau County Osteopathic Society

Charles K. Smith, Freeport, reports that a meeting was held on March 3 at Freeport. Mr. James L. Dowsey, County Attorney of Nassau, spoke on "Jurisprudence and Legislation in Relation to Osteopathy." A lecture on "Malignant Bone Tumors" illustrated by motion pictures, was given.

Osteopathic Society of the City of New York

A meeting was held on March 20. Eugene R. Kraus, William Friedman, J. Marshall Hoag, Arthur S. Hulett, all of New York City, and R. Arthur Fish, Flushing, and William B. Strong, Brooklyn, presented clinic cases.

The next meeting is scheduled to be held on April 18.

Westchester Osteopathic Society

H. C. West, Yonkers, reports that a meeting was held on March 4 at White Plains. Eugene R. Kraus, New York City, read a paper on the pathologies and abnormalities of the skeleton.

The April meeting is scheduled to be held on the 8th at New Rochelle.

OHIO

Southeastern Ohio Osteopathic Society

W. Paul Roberts, Zanesville, reports that a meeting was held on February 27 at Cambridge. James O. Watson, Columbus, spoke on legislation.

Second (Cleveland) District Osteopathic Society

C. A. Purdum, Cleveland, reports that the regular dinner meeting was held on March 2. Charles C. Higgins, M.D., Cleveland, spoke on the diagnosis, and dietary treatment, of kidney stones.

Third (Akron) District Osteopathic Society

L. H. Anderson, Akron, reports that a meeting was held on March 4 at Youngstown. Coach Dave Williams of Suth High School, Youngstown, spoke on "Athletic Injuries." E. C. White, Warren, spoke on diagnosis.

Fourth (Columbus or Central) Ohio Osteopathic Society

Frances L. White, Columbus, reports that a meeting was held on March 5, at Columbus. Gerald M. Stevenson, Kent, spoke on "Eugenics as Viewed by Physicians."

Fifth (Dayton) District Osteopathic Society

E. E. Leonard, Dayton, reports that a meeting was held on March 18. William Allen Gravett, Dayton, reviewed Frederick Erdman's book.

Sixth (Cincinnati) Society of Osteopathic Physicians and Surgeons

A. Clinton McKinstry, Cincinnati, reports that a meeting was held on March 14. H. M. Williams, Lebanon, spoke on "Diagnosis and Treatment of Common Fractures," and James O. Watson, Columbus, on legislation.

OKLAHOMA

Central Oklahoma Osteopathic Association

A meeting was held on March 7 at Weleetka. R. B. Beyer, Checotah, was the principal speaker. Case reports were presented.

Eastern Oklahoma Osteopathic Association

The following officers were elected on January 25: President, C. E. Dicky, Eufaula; vice president, Jim Russell, Muskogee; secretary-treasurer, P. R. Riemer, Inola.

Kay County Osteopathic Association

A meeting was held on February 20 at Blackwell. Ray E. McFarland, Wichita, Kans., read papers on "Endocrines" and "Pediatrics."

D. W. Streitenberger, Ponca City, reports that a meeting was held on March 12 at Ponca City. John E. Halladay, Tulsa, showed x-ray pictures on the diagnosis of fractures.

Tulsa District Osteopathic Association

Harry E. Green, Tulsa, reports that a meeting was held on March 5. H. C. Baldwin, Tulsa, spoke on "The Schilling Count," and L. A. Reiter, Tulsa, read the program of the state convention.

OREGON

State Association

The spring osteopathic "Round-Up" was held on March 29 at Pendleton. The following program was scheduled to be presented: "Emergencies and Their Care," J. H. Robison, Yakima, Wash.; "Endocrinology," J. A. van Brakle, Portland; "Obstetrics," W. S. Holt, Yakima, Wash., and C. A. Hughes, Sunnyside, Wash.; "Technic," H. B. Catron, Payette, Idaho, and Sol W. Catron, Weiser, Idaho; "Old Timers Hour," ten minutes each by six old

timers; "Your Profession," Bishop William P. Remington. The motion pictures, "Our American Feet" and "Dorsal Technic," were shown.

Southern Oregon Osteopathic Society

F. G. Carlow, Medford, reports that the regular monthly meeting was held at the Osteopathic Clinic and Hospital in Medford on February 17. Dr. Carlow demonstrated upper dorsal technic. A general discussion followed, led by R. R. Sherwood, Medford, on unusual conditions sometimes found in pregnancy.

The March meeting was scheduled to be held on the 16th at Ashland. W. W. Howard, Medford, was to report on the midyear meeting held in January in Portland, and Dr. Sherwood was to present case histories, x-rays, etc.

PENNSYLVANIA

Erie County Osteopathic Society

The following officers were elected on March 4: President, B. W. Sweet; vice president, Jesse A. Root; secretary, H. A. Sweet; treasurer, F. E. Avery, all of Erie. The following committee chairmen have been appointed: Membership and hospitals, Frederick T. Hicks; professional education, statistics, and professional development, Dr. Avery; censorship, Charles D. Farrow; student recruiting and public health and education, H. J. Scheid; industrial and institutional service, Charles Farrow; clinics and publicity, H. Dale Pearson; convention program, convention arrangements, and legislation, J. W. Robinson, all of Erie.

A special meeting was held on March 14 at Erie.

At a meeting held on March 18 at Erie, F. E. Avery, Erie, spoke on "The Acute Surgical Abdomen." Other speakers were H. A. Sweet and Frederick T. Hicks, both of Erie.

Harrisburg Osteopathic Society

A dinner meeting was held on February 29. Thomas R. Thorburn, A.O.A. President, New York City, Ralph P. Baker, Lancaster, O. J. Snyder, Philadelphia, and Ralph L. Fischer, Germantown, were the speakers.

Lehigh Valley Osteopathic Association

A meeting was held on February 13 at Bethlehem. Charles J. Muttart, Philadelphia, spoke on "Prolapsus of Abdominal Organs, Their Diagnosis and Treatment."

At a meeting held on March 12, Ralph L. Fischer, Philadelphia, spoke on "Methods, Past and Present, in the Treatment of Pulmonary Tuberculosis;" J. Ernest Leuzinger, Philadelphia, on "The Relation of the Endoscopist to the Thoracic Surgeon in Treating Pulmonary Tuberculosis," and Carlton Street, Philadelphia, "The Surgical Treatment of Pulmonary Tuberculosis."

RHODE ISLAND

State Society

At a meeting held on March 11, Thomas R. Thorburn, A.O.A. President, New York City, was the principal speaker.

SOUTH DAKOTA

Black Hills Osteopathic Association

D. M. Mills, Rapid City, reports that a meeting was held on March 1 at Rapid City. Mr. Peters of the Benson Optical Company spoke on the origin and development of optical glass.

TENNESSEE

Memphis Osteopathic Association

(See West Tennessee District Osteopathic Association.)

West Tennessee District Osteopathic Association

W. L. Baker, Memphis, reports that a joint meeting with the Memphis Osteopathic Association was held on March 8 at Memphis. H. R. Bynum, Memphis, discussed the new ambulant method of foot correction.

TEXAS

State Association

The annual convention of the Texas Association of Osteopathic Physicians and Surgeons will be held on June 4, 5, and 6 in Dallas, coinciding with the official opening of the Centennial Celebration in that city.

Houston Osteopathic Association

Lloyd D. Hammond, Beaumont, reports that a meeting was held on February 20. Ben Hayman, Houston, read a paper on "The Rhythm of Sterility and Fertility in Women," and Mr. Robert L. Sonfield, a Houston attorney, spoke on "The Expert Witness."

The following officers were elected: President, C. B. Miesch, and secretary-treasurer, Homer C. Wilson, both of Houston.

Lower Rio Grande Valley Osteopathic Association

Jacobine Kruze, San Benito, reports that a meeting was held on February 22 at Harlingen. A. L. Kline, San Benito, conducted a round table discussion on the treatment of coryza, influenza, bronchitis, and pneumonia.

The March meeting was scheduled to be held on March 28 at San Benito, too late to be reported in this number of THE JOURNAL.

Panhandle Osteopathic Society

A meeting was held on March 1 at Amarillo. The following program was presented: "The Colon as a Focus of Infection," Ralph J. Moore, Amarillo; "Nontuberculous Diseases of the Chest," W. A. Seydler, Pampa; "Fever, Nature's Great Curative Agent," Sam L. Scothorn, Dallas.

The following officers were elected: President, Kibby J. Clements, Plainview; vice president, J. Francis Brown, Amarillo; secretary-treasurer, J. H. Chandler, Amarillo.

Committeemen have been appointed as follows: Membership, M. S. Miller, Canyon; professional education, and statistics, E. H. Mann, Amarillo; hospitals, L. V. Cradit, Amarillo; censorship, Dr. Seydler; student recruiting, convention program, and legislation, Ralph J. Moore, Amarillo; public health and education, C. A. Bueler, Tucumcari, N. Mex.; industrial and institutional service, Dr. Chandler; clinics and publicity, L. J. Vick, Amarillo, and Walter J. Williams, Plainview; convention arrangements, Dr. Brown; displays at fairs and expositions, Drs. Mann and Chandler.

Southeast Texas Osteopathic Association

A meeting was held on March 5 at Houston. John H. Styles, Jr., Kansas City, Mo., spoke on the applied anatomy of the foot, and Dar D. Daily, Weatherford, discussed and demonstrated osteopathic technic.

The following officers were elected: President, Reginald Platt, Houston; vice president, William Bailey, Houston; secretary-treasurer, Lloyd D. Hammond, Beaumont.

The next meeting is scheduled to be held at Houston on June 13.

WASHINGTON

King County Osteopathic Association

A dinner meeting was held on February 13 at Seattle. The speakers included: A. B. Ford, Minnie F. Potter, Roberta Wimer-Ford, W. A. Newland, and J. R. Honnold, all of Seattle.

Yakima Valley Osteopathic Association

A dinner meeting was held on March 1 at Mabton.

The following officers were elected: J. H. Robison, Yakima; vice president, V. E. Holt, Yakima; secretary-treasurer, Celia Sutherland, Selah.

WISCONSIN

State Society

The annual convention of the Wisconsin Osteopathic Society will be held on April 3, 4, and 5, at the Plankinton Hotel, Milwaukee. Carter H. Downing, San Francisco, will be one of the speakers.

Milwaukee County Society of Osteopathic Medicine

H. R. Bullis, Milwaukee, reports the following meetings:

February 14—John P. Koehler, M.D., health commissioner of Milwaukee, discussed the procedure of the health department in controlling scarlet fever and tuberculosis among school children.

February 21—Open discussion.

February 28—Attorney Walter J. Mattison, formerly assistant city attorney of Milwaukee, spoke on "Present City Problems."

March 6—Open discussion.

CANADA

Saskatchewan Society of Osteopathic Physicians

The following officers were elected on February 15: President, Anna E. Northup, Moose Jaw; secretary-treasurer, Doris M. Tanner, Regina. The following committee chairmen have been appointed: Student recruiting, Alfred H. Hawke, Moose Jaw; clinics, Dr. Tanner.

Special and Specialty Groups

Eastern Osteopathic Association

The meeting was held on March 28 and 29 at Hotel Pennsylvania, New York City, too late to be reported in this number of THE JOURNAL. The program was published in THE JOURNAL for March.

APPLICANTS FOR MEMBERSHIP

California

Chambers, Frank S.,
606 S. Hill St., Los Angeles.

Moran, Edward E.,
6418 Santa Monica Blvd., Hollywood, Los Angeles.

Traughber, W. F., (Renewal),
408 S. Western Ave., Los Angeles.

Robb, S. Edith (Renewal),
520 Cowper St., Palo Alto.

Wyckoff, A. B. (Renewal),
1355 N. Lake Ave., Pasadena.

Martin, Edward J.,
Main St., San Andreas.

Martin, Ruth E. (Renewal),
Main St., San Andreas.

Colorado

Wren, Rodney (Renewal),
415 Colorado Bldg., Pueblo.

Florida

Ripley, G. H., Jr. (Renewal),
835 Lincoln Road, Miami Beach.

Jones, Etha Marion (Renewal),
241 First St., N., St. Petersburg.

Carr, Harry Newton (Renewal),
321 Stovall Professional Bldg., Tampa.

Hawaii

Casey, Vernon V.,
318 Hawaiian Trust Bldg., Honolulu.

Illinois

Brandenburg, Frank C. (Renewal),
1138 E. 63rd St., Chicago.

Crenshaw, Langston,
5459 Kimbark Ave., Chicago.

Gaddie, Charles E.,
7421 Kimbark Ave., Chicago.

Gour, Andrew A. (Renewal),
25 E. Jackson Blvd., Chicago.

Heffelfinger, Daniel B. (Renewal),
25 E. Jackson Blvd., Chicago.

Heffelfinger, Mary (Renewal),
803 E. 61st St., Chicago.

Johnston, Horace K. (Renewal),
8 S. Michigan Ave., Chicago.

Lambert, A. G.,
5756 W. Chicago Ave., Chicago.

Lychenheim, Morris,
2030 Touhy Ave., Chicago.

McCall, Anita B. (Renewal),
728 N. Pine Ave., Chicago.

McDonough, Weston M. (Renewal),
1525 E. 53rd St., Chicago.

Sharp, F. A. (Renewal),
208 N. La Salle St., Chicago.

Stauffer, Charles W.,
Chicago Osteopathic Hospital, 5250 Ellis Ave., Chicago.

Barker, James W. (Renewal),
900 Main St., Eureka.

Weber, A. C. (Renewal),
408 Second Natl. Bank Bldg., Freeport.

Thiele, F. G. (Renewal),
321 Peoples Bldg., Galesburg.

Hanington, Mary E. (Renewal),
228 Hamilton St., Geneva.

Pontius, David H. (Renewal),
1862 Sycamore Road, Homewood.

Fossler, Van H. (Renewal),
642 S. Main St., Princeton.

Wise, Hugh P. (Renewal),
607 Gas-Electric Bldg., Rockford.

Wise, Hugh T. (Renewal),
607 Gas-Electric Bldg., Rockford.

Indiana

Eccles, Charles M. (Renewal),
818 Central Ave., Connersville.

Weaver, Calvin R. (Renewal),
107½ S. Main St., Goshen.

Doddridge, Frank E. (Renewal),
707-08 J.M.S. Bldg., South Bend.

Iowa

Stewart, Elmina M. (Renewal),
408 Howes Block, Clinton.

Runions, M. R. (Renewal),
Cooper Bldg., Correctionville.

Rose, Orville E. (Renewal),
3700 Sixth Ave., Des Moines.

Heinlen, W. E., Elliott.

Potter, Charles H. (Renewal),
Forest City.

Phillips, E. H. (Renewal),
Masonic Bldg., Garner.

Manatt, E. S. (Renewal),
Hampton.

Gordon, L. E. (Renewal),
Cuplin Bldg., Iowa Falls.

Jones, B. W. (Renewal),
Spirit Lake.

Louisiana

Kidwell, James R.,
Roumain Bldg., Baton Rouge.

Walton, R. H. (Renewal),
1128 Hibernia Bank Bldg., New Orleans.

Geddes, Paul W. (Renewal),
915 Slattery Bldg., Shreveport.

Maine

Patterson, Russell J. (Renewal),
Federal Road, Kezar Falls.

Donovan, Mary F. (Renewal),
2 Fogg Bldg., Sanford.

Massachusetts

Fessenden, Raymond, 415 Main St., Athol.

Sullivan, Edward B., (Renewal),
30 Huntington Ave., Boston.

Little, Mabelle G. (Renewal),
120 College Ave., West Somerville, Boston.

Nicholls, Melvin H., 80 W. Foster St., Melrose.

Spinney, Andrew O., KCOS '36 (Jan.), 66 Warren St., West Medford.

Pentz, Herbert H., (Renewal),
417 Main St., Winchester.

Michigan

Porter, E. R. (Renewal),
Bridgman.

Hubbell, Preston R. (Renewal),
505 Park Ave. Bldg., Detroit.

Jurige, Ernest H., 2027 David Stott Bldg., Detroit.

Vowles, Bruce S., (Renewal),
16 Monroe Ave., Grand Rapids.

Shertzer, Boyd N., (Renewal),
Howell.

Keithly, R. E. (Renewal),
202 Hale Bldg., South Haven.

Douglass, S. E., (Renewal),
White Cloud.

Missouri

Thompson, Claude A., KCOS '36 (Jan.) Browning.

Vaughn, Robert E., (Renewal),
Lancaster.

McRae, Paul F., (Renewal),
5473 Delmar Bldg., St. Louis.

Montana

Grewell, Dean M., (Renewal),
305-06 Stapleton Bldg., Billings.

Nebraska

Cramb, E. M.,
609 Federal Trust Bldg., Lincoln.

New Jersey

Wiggins, W. H. (Renewal),
122 Cornelia St., Boonton.

Peters, Gordon L., (Renewal)
113 Miln St., Cranford.

Colvin, George, (Renewal),
100 Park Ave., Dover.

Hamilton, Walter M.,
507 Walnut St., Roselle Park.

New York

Blawis, Beatrice (Renewal),
361 State St., Albany.

Christastie, F. J., (Renewal),
320 W. Church St., Elmira.

Cole, Robert E., (Renewal),
417 S. Main St., Geneva.

Dillabough, W. J. E.,
117 W. 58th St., New York.

Maxwell, James D., (Renewal),
45 Church St., Patchogue, L. I.

Stearns, Mary Ellen,
412½ Broadway, Saratoga Springs.

North Dakota

Murray, V. M.,
Mott.

Ohio

Hamilton, J. C. (Renewal),
2538 Woodburn Ave., Cincinnati.

Williams, H. M., (Renewal),
Ivins-Jameson Bldg., Lebanon.

Glassco, George M., (Renewal),
409 Union Savings & Trust Bldg., Warren.

Oklahoma

Kincade, Paul A., (Renewal),
305 First Natl. Bank Bldg., Bartlesville.

Blackwood, William D.,
Hartshorne.

Oregon

White, B. H., (Renewal),
355 N. Capitol St., Salem.

Pennsylvania

Deprez, Marcella E. (Renewal),
112 E. Walnut St., Lancaster.

Green, Simon,
601 E. Allegheny Ave., Philadelphia.

South Dakota

Huetson, Ward L. (Renewal),
Alcester.

Tennessee

Rohweder, Henry B., (Renewal),
504 Jackson Bldg., Nashville.

Vermont

Wheeler, Kenneth P., (Renewal),
310 Barber Bldg., Brattleboro.

West Virginia

Smith, Norman E., (Renewal),
St. George Apts., Charles Town.

Wisconsin

Baldi, John B., (Renewal),
1132 E. Ogden St., Milwaukee.

Fraker, J. Franklin,
16 Mt. Vernon St., Oshkosh.

Canada

Illing, H. E., (Renewal),
40 King St., E., Kitchener, Ont.

CHANGES OF ADDRESS AND NEW LOCATIONS

Badger, W. H., from Corsicana, Texas, to 6523½ Harrisburg Blvd., Houston, Texas.

Baker, Frank, from 928 Sixth St., to 726 Sixth St., Clarkston, Wash.

Beall, I. N., from Richards Bldg., to 51 N. Fifth St., Zanesville, Ohio.

Berwick, Thomas, from 78 Ellen St., to 717 Brock Ave., New Bedford, Mass.

Butts, Lorenzo E., from Peoples Bank Bldg., to 88 Fort St., Nelsonville, Ohio.

Carr, Iva Mae, from West Palm Beach, Fla., to 50 S. Ridgewood, Sebring, Fla.

Carroll, J. R., from 2611 Vallejo St., to 2723 N. Broadway, Los Angeles.

Carter, Noel, from Richland, Iowa, to 309 Eisfeld Bldg., Burlington, Iowa.

Coffey, Opal E., from 105 S. Randolph St., to 209 W. Park St., Champaign, Ill.

Comstock, E. S., from Norcatur, Kans., to 1626 F. Street, Lincoln, Nebr.

Conaway, John H., DMS '36 (Jan.) 1921 Washington Ave., Des Moines, Iowa.

Coryell, Gordon C., KCOS '36 (Jan.), 214 West Ave., East Rochester, N. Y.

Cresse, Lloyd M., KCOS '36 (Jan.), 106½ W. Main St., Bethany, Okla.

Cunningham, E. Jane Letts, from 236 W. Dayton St., to 211 W. Newall St., Flint, Mich.

DeBeaulieu, Mabel G., KC '36 (Jan.), 37 Strand Arcade, Lansing, Mich.

Deveny, A. L., from 2515 Pearl St., to 727-29 Littlefield Bldg., Austin, Texas.

Diver, George W., from Butler, Mo., to Dallas City, Ill.

Ellis, Harold F. C., KCOS '36 (Jan.), 95 Weston St., Brockton, Mass.

Ennis, John C., from Marietta, Ga., to 613 S. Grove St., Kewanee, Ill.

Epps, Franklin S., from 65 Goff St., to 7 Grove St., Auburn, Maine.

Faber, Anna Marie, from Winterset, Iowa, to 1126 Des Moines Bldg., Des Moines, Iowa.

Fanelly, Frank F., KCOS '35, 611 Akron Savings & Loan Bldg., Akron, Ohio.

Farnum, C. Edward, from 3, Carter St., to 212-14 C.M.L. Bldg., King William St., Adelaide, South Australia.

Forbes, J. Robert, from 426 Carver Bldg., to 505 Carver Bldg., Fort Dodge, Iowa.

Goldberg, Louis, from 2486—85th St., to 56 Hanson Place, Brooklyn.

Handy, Chester L., from Auburn, R. I., to 40 Rolfe St., Cranston, R. I.

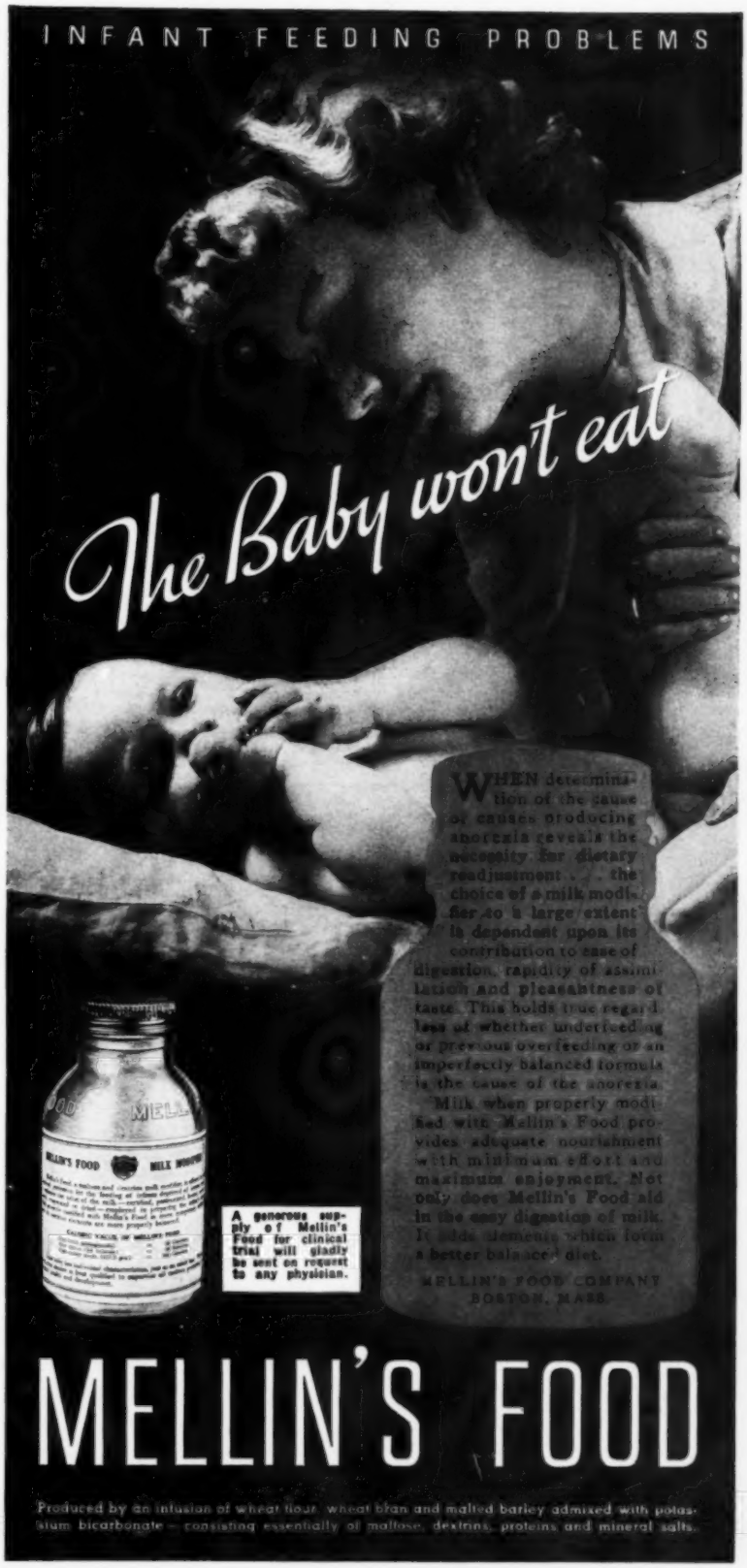
Harden, J. M., KCOS '36 (Jan.), General Delivery, Greenwood, S. Car.

Hecker, Frederick E., DMS '36 (Jan.), 1076—42nd St., Des Moines, Iowa.

Heim, Joseph M., KCOS '36 (Jan.), 94 W. 15th St., Barberton, Ohio.

Jones, Etha Marion, from 119 Second St., to 241 First St. N., St. Petersburg, Fla.

(Continued on page 26)


INFANT FEEDING PROBLEMS
The Baby won't eat
WHEN determination of the cause or causes producing anorexia reveals the necessity for dietary readjustment . . . the choice of a milk modifier to a large extent is dependent upon its contribution to ease of digestion, rapidity of assimilation and pleasantness of taste. This holds true regardless of whether underfeeding or previous overfeeding or an imperfectly balanced formula is the cause of the anorexia.
Milk when properly modified with Mellin's Food provides adequate nourishment with minimum effort and maximum enjoyment. Not only does Mellin's Food aid in the easy digestion of milk. It adds elements which form a better balanced diet.
MELLIN'S FOOD COMPANY
BOSTON, MASS.
A generous supply of Mellin's Food for clinical trial will gladly be sent on request to any physician.
MELLIN'S FOOD
Produced by an infusion of wheat flour, wheat bran and malted barley admixed with potassium bicarbonate — consisting essentially of maltose, dextrins, proteins and mineral salts.

College of Osteopathic Physicians and Surgeons

1721 Griffin Ave.

LOS ANGELES, CALIFORNIA

Entrance Requirements

The College of Osteopathic Physicians and Surgeons requires TWO FULL YEARS OF COLLEGE WORK including physics, general chemistry, organic chemistry, zoology, English, social sciences and electives aggregating 60 semester units. This work may be obtained in any accredited college if of satisfactory character. This requirement MUST BE COMPLETED before entering the Freshman class.

The professional course consists of four years and fulfills all legal requirements for the unlimited license of physician and surgeon in California. This is the only osteopathic college whose diploma admits to the examinations for this license.

The fourth or Senior year is altogether practical in character and consists of nine months spent in the Los Angeles County Osteopathic Hospital as assistant internes or clinical clerks. This arrangement really makes our Senior year equivalent to a year of interneship.

Affiliated institutions consist of the Los Angeles County Maternity Service and the Los Angeles County Osteopathic Hospital, a division of the Los Angeles County General Hospital. From twenty-five to thirty internships are available on graduation in the Los Angeles County Osteopathic Hospital and certain other hospitals. For information address the college.

THERMOGENICS

If you are interested in Thermogenics you should obtain our Bulletins and Literature on the subject.

They may help you

PLASMATIC-THERAPY COMPANY

664 N. Michigan Ave. Chicago

No Obligation—of Course

The Last Few Copies of

Booths'

"History of Osteopathy"

at reduced prices

Cloth: $4.00 Leather: $5.00

Postpaid—Send Cash with Order

American Osteopathic Association

430 N. Michigan Ave., Chicago

"Osteopathic Care of Athletes"

1936 Enlarged Edition

40 Pages—16 Additional Pages

A compilation of articles by leading authorities on this subject.

Most of these articles were published in The Journal of the American Osteopathic Association.

Three articles appeared in Clinical Osteopathy. Buy a copy for your library and others for athletic coaches.

50 Cents Each Postpaid, 5 for $2.00

American Osteopathic Association **430 N. Michigan Ave., Chicago**

In Digestive Disturbances—

NOTABLY ULCERS

Horlick's Malted Milk **offers a bland and soothing diet in dyspepsia, gastric and intestinal catarrh and ulceration of the stomach and duodenum. It is practically free from insoluble residue. During manufacture the fat is thoroughly emulsified, and all the starch of the grain is completely hydrolyzed to maltose and dextrin.**

Horlick's, **when used with either milk or water, is a slightly alkaline colloidal food, quite soothing to delicate mucous membrane, yet high in nutritional value.**

In ulcer cases, Horlick's Malted Milk Tablets are a special convenience, since a flask may be carried in the pocket, offering suitable nourishment at the required intervals.

HORLICK'S MALTED MILK CORPORATION **Racine, Wisconsin**

The best illustrated booklet to send the laity

OSTEOPATHY, THE SCIENCE OF HEALING BY ADJUSTMENT

BY PERCY H. WOODALL, D. O.

$6.50 per 100 **American Osteopathic Association, 430 N. Michigan Ave., Chicago, Ill.**

"OSTEOPATHIC BRIEFS"

a new series of educational leaflets entitled:

No. 1. Osteopathic School of Practice.
No. 2. Influenza.
No. 3. Pneumonia.
No. 4. Sciatica.
No. 5. Acute Infectious Diseases.
No. 6. Strains and Sprains.
No. 7. Periodic Health Examinations.
No. 8. Nervous Diseases.

Well printed. 4 pages. Average 1750 words each. Size 6x9. Easily folded for mailing in business envelope. Room for professional card if desired.
Prices: $1.75 per 100. $15.00 per 1000. Order by Number. Set of 8 Samples, 10 cents.
Imprinting: Under 1,000, 50 cents per 100; 1,000 and over, 25 cents per 100.

American Osteopathic Association, 430 N. Michigan Ave., Chicago, Ill.

Use This Blank When Ordering

Revised Prices

OSTEOPATHIC MAGAZINE

Delivered in Bulk to Your Office	Annual Contract	Single Order
Under 200 copies	$6.00 per 100	$6.50 per 100
200 or more	5.00 per 100	5.50 per 100

OSTEOPATHIC HEALTH

Delivered in Bulk to Your Office	Annual Contract	Single Order
Under 200 copies	$4.00 per 100	$5.00 per 100
200 or more	3.75 per 100	4.75 per 100

5% for cash on orders of 500 or more. Mailed direct to list—$1.50 per 100 extra. Professional Card Free. Shipping Charges Prepaid. Samples on Request. Both mail for one cent if sent unsealed and without enclosures.

American Osteopathic Association
430 N. Michigan Ave., Chicago.

Please send_____copies of
Osteopathic Magazine (April)
Osteopathic Health (No. 76)
Cross out name of one not wanted

With professional card_____.

Without professional card_____.

Name_____

Address_____

HAVE YOU READ... page 12 of your ACE PROFESSIONAL MANUAL?

ACE PROFESSIONAL MANUAL

extra copies on request

CHEST SUPPORT AND RESTRICTION

ACE Bandages, 6" or 8" wide, have been successfully used for chest support whenever "splinting" is necessary. When wrapped around the chest, they control the excursions of the auxiliary muscles of respiration both voluntary and involuntary, and the pain which is caused by rubbing together of inflamed pleural surfaces is lessened if not entirely relieved.

In Pulmonary Tuberculosis, the ACE Bandage, when wrapped around the chest, helps to restrict the respiratory excursions, thereby lessening harmful inspirations which precede coughing and aspiration of infectious exudates into normal lung tissue; it will also assist to reduce the traumatic damage of violent coughing to the lungs, heart and pleura, and lessens the disturbance to the digestive organs often caused by severe coughing.

Illustration No. 15
Chest Support

VISCEROPTOSIS OR RELAXED ABDOMINAL WALL

ACE Bandages, 8" or 10" wide, have been successfully used for post-operative support of lower, middle and upper abdominal incisions, also for treatment of Visceroptosis, Gastroptosis and general relaxation of the abdominal muscles.

ACE Bandages are easily applied by smooth continuous wrapping around the abdomen, the patient either standing or lying down. To get the important uplifting support, hold the bandage, while wrapping, near the lower edge instead of in the center.

The bandage, properly applied, will support the internal organs and stay in place. It allows free and easy movement while walking, sitting or bending.

ACE Bandages, 8" or 10" wide, are also useful for abdominal support in T B. cases who suffer from Visceroptosis, due to the relaxation of the abdominal muscles.

Illustration No. 16
Abdominal Support

[12]

B-D PRODUCTS
Made for the Profession

BECTON, DICKINSON & CO., RUTHERFORD, N. J.

Dan's Decision

A Vocational Moving Picture

Dan's Decision is available to A.O.A. members without rental charge. The only expense is for express charges which are very nominal. You can usually obtain the use of a machine and operator without much trouble or expense.

TWO SIZES

The film may be obtained in two sizes: the 35 mm. size for use on standard projectors (theatres, auditoriums, etc.) and the 16 mm. edition for home size projectors (not suited for audiences of more than 100). Remember—the film is safe to use, being non-combustible.

Write for free folders to give your school principal and club program chairmen.

Arrange with us now for a date to show the film in your town.

American Osteopathic Association, 430 N. Michigan Ave., Chicago, Ill.

CHANGES OF ADDRESS

(Continued from page 23)

Kattman, Bertha, from 518 S. Forest Ave., to 600 N. Meridian St., Brazil, Ind.

Kibler, James A., from Gainesville, Texas, to Ione, Oregon.

Kilb, John, from Reno, Nev., to Canal Bank Bldg., New Orleans, La.

Larson, Kenneth A., from Chicago, to Church Street Bldg., 708 Church St., Evanston, Ill.

Lawson, Sidney, KC '36 (Jan.), 1129 Grand Ave., Kansas City, Mo.

Loveland, Mark M., from Bucyrus, Ohio, to 610 Guaranty Bldg., 6331 Hollywood Blvd., Los Angeles.

Lynch, Delia A., from 317 W.O.W. Bldg., to 712 World Herald Bldg., Omaha, Nebr.

Lyne, Hazel C., from Richards Bldg., to 51 N. Fifth St., Zanesville, Ohio.

Magoun, Helen C., from Scottsbluff, Nebr., to 1550 Lincoln St., Denver.

McCreary, Angela M., from 317 W.O.W. Bldg., to 712 World Herald Bldg., Omaha, Nebr.

Mehegan, C. W., from Fairfax, Okla., to Box 386, Stilwell, Okla.

Miller, Waldo B., from Boston, to 26 McCosh Road, Upper Montclair, N. J.

Montgomery, Arthur L., DMS '36 (Jan.), 28½ S. Broadway, Edmond, Okla.

Mount, Charles W., from Mound City, Kans., to Box 516, St. Paul, Kans.

Newman, John H., from 1310 N. 24th St., to 416-17 Woodward Bldg., Birmingham, Ala.

Pentz, Herbert H., from Boston, to 417 Main St., Winchester, Mass.

Pyle, Charles M., KC '36 (Jan.), Lakeside Hospital, 2801 Flora Ave., Kansas City, Mo.

Rice, Verne L., KCOS '36 (Jan.), Twin Oaks, Sedgwick, Maine.

Ruch, Roy A., from Albany, N. Y., to 116 Park Ave., Mechanicville, N. Y.

Sanfelippo, M. L., DMS '36 (Jan.), 1639 N. Marshall St., Milwaukee, Wis.

Sims, Bruce F., from 42 Owen Ave., to 38 E. Huntington Drive, Arcadia, Calif.

Slifer, J. Fahrney, KCOS '36 (Jan.), Little River, Kans.

Spinney, Andrew O., KCOS '36 (Jan.), 66 Warren St., West Medford, Mass.

Spurling, S. Raymond, KCOS '36 (Jan.), Box 96, Hamilton, Bermuda.

Thompson, Claude A., KCOS '36 (Jan.), Browning, Mo.

Tucker, Warren J. E., from Verona, N. Y., to 551 Fifth Ave., New York.

Walker, Joseph A., from Philadelphia, to 227-28 Washington Square Bldg., Royal Oak, Mich.

Watson, R. W. R., from 12, Windsor Crescent, to 4, Sydenham Terrace, Newcastle-upon-Tyne, England.

Weber, Harold M., from 45 Saranac St., to 827 Commerce Bldg., Rochester, N. Y.

Wells, D. H., from Berkeley, Calif., to 4101 Valley Blvd., Los Angeles.

White, E. H., from West Branch, Mich., to Bronson, Mich.

White, Frances L., from 1464 Neil Ave., to 1392 Neil Ave., Columbus, Ohio.

(Continued on page 27)

CALIFORNIA

LOS ANGELES
MERRILL SANITARIUM
Neuropsychiatric
Downtown Office
609 South Grand Avenue

DR. THOMAS J. MEYERS
NEUROPSYCHIATRY
Migraine
EPILEPSY
989 E. Washington St.
PASADENA CALIF.

DISTRICT OF COLUMBIA

DR. CHESTER D. SWOPE
Osteopathic Physician
The Farragut Apts.
Washington, D. C.

FLORIDA

Dr. Stephen B. Gibbs
Osteopathic Physician
General Practice—Electrotherapy
Specialty: Arthritis and Rheumatism
(Using Ketogenic Diet)
933 Lincoln Road
MIAMI BEACH

Dr. Gerald A. Richardson
Mount Dora Hospital
General Osteopathic Practice, Diathermy, Light Therapy, Bladder, Colonic Irrigations, Intravenous Medications. Specialty: Obstetrics.
Mount Dora, Florida
See A.O.A. Directory

CHANGES OF ADDRESS
(Continued from page 26)

Williams, H. E., from Marshall, Mo., to 411 N. Washington St., Ardmore, Okla.

Williams, Olive B., from 507 Main St., to 703 Park Bldg., Worcester, Mass.

Wissmiller, G. W., from El Paso, Ill., to Rantoul, Ill.

Zumbrum, W. F., from Excelsior Springs, Mo., to Bolivar, Mo.

"OSTEOPATHY AS A CAREER"
A vocational leaflet prepared by Office of Education, U. S. Dept. of Interior.
Send 3 Cents for Copy
American Osteopathic Association
430 N. Michigan Ave., Chicago

Literature Rack
Brightens your office and helps you to deliver the message of osteopathy to every caller. Keeps your literature clean and accessible.

Size 17x20
Price $2.50
Sent anywhere in the U. S. A. only, express charges collect.
American Osteopathic Association
430 N. Michigan Av., Chicago

IOWA

DR. ARTHUR D. BECKER
Osteopathic Physician
General Diagnosis
Cardiologist
Des Moines General Hospital
Des Moines, Iowa
Practice limited to consultation

MASSACHUSETTS

Dr. Orel F. Martin
SURGEON
68 Commonwealth Ave.
BOSTON, MASS.
Chief Surgeon
Massachusetts Osteopathic Hospital

R. Kendrick Smith, D.O.
419 Boylston St.
Boston

MISSOURI

Collin Brooke, D.O.
Practice Limited to Proctology—Varicose Veins —Hernia
ST. LOUIS
210 Frisco Bldg., 906 Olive St.

NEW YORK

Thomas R. Thorburn
D.O., M.D.
SURGERY
Nose, Throat and Ear
Hotel Buckingham, 101 West 57 St.
New York City

NEURITIS
ARTHRITIS
MYALGIA
BET-U-LOL
relieves
PAIN *and* CONGESTION
THE HUXLEY LABORATORIES INC. • NEW YORK N.Y.
BURSITIS
DYSMENORRHEA
TORTICOLLIS

OHIO

Dr. Charlotte Weaver
Alienist

Consultation, Diagnosis, and Treatment
Osteopathy, Endocrinology, Psychoanalysis, Psychoresynthesis

By Appointment Only

Suite 839
Mayflower Hotel
Akron, Ohio

Telephones:
JEfferson 1871
HEmlock 7442

ENGLAND

RAY M. RUSSELL

Practice of Osteopathy

Grosvenor House, Park Lane
LONDON, ENGLAND

NEW YORK

Dr. A. Bowman Clark
Dr. Elizabeth S. Carlin
77 PARK AVE.
Cor. 39th St.
NEW YORK CITY
GENERAL OSTEOPATHIC PRACTICE
LONG ISLAND OFFICE
99 CATHEDRAL AVE.
HEMPSTED

FRANCE

William J. Douglas, D.O.
43 Avenue George V.
(Champs Elysees)
PARIS
Tel. Elysées 60-51
FRANCE

RHODE ISLAND

Dr. F. C. True
SURGEON
1763 Broad St.
PROVIDENCE, R. I.
CHIEF SURGEON
R. I. OSTEOPATHIC HOSPITAL

Classified Advertisements

RATES PER INSERTION: $2.00 for 20 words or less. Additional words 10 cents each.

TERMS: Cash with order.

COPY: Must be received by 20th of preceding month.

AMBULANT PROCTOLOGY: Lectures on Ambulant Proctology and the Injection Treatment of Hernia. Price $5.00. Individual instruction given. Dr. P. H. Woodall, 617 First National Bank Bldg., Birmingham, Ala.

FOLEY TRUSSES. Also Foley hernia and varicose vein solutions. We teach you to get results with these valuable agents. Thomplasto, Leesburg, Va.

TABLES: New type spring cushion or sanitary, sterilizable sponge rubber. Hydraulic or stationary base. DR. HAYMAN, Mfr., Doylestown, Pa.

New Revised Edition

Standard Loose Leaf
CASE HISTORY BLANKS

Size 8½x11—Ruled paper
Punched for binder

$1.00 per 100, postpaid

A. O. A.—430 N. Michigan Ave. Chicago

℞ Taurocol
(Torocol) TABLETS

IN GALL BLADDER DYSFUNCTION

where a true cholagogue is needed remember TAUROCOL and TAUROCOL COMPOUND TABLETS with digestive ferments

VERA PERLES of Sandalwood Compound . . . another Plessner Product.

THE PAUL PLESSNER CO.
Detroit, Mich. AO 4-36

"An Analysis of the Osteopathic Lesion"

A Study in Pathology, Physiology and Anatomy

By George Malcom McCole, D.O.

Price $4.00 Postpaid—Foreign $4.30

Journal Publishing Co., Kirksville, Mo.

For full details on special offer, see A.O.A. Journal, March, 1936, p. 16

SINUSITIS RELIEF!
NICHOLS NASAL SYPHON EVACUATES THE SINUSES AND PROMOTES VENTILATION AND DRAINAGE
Write for Professional Special Offer
Nichols Nasal Syphon, Inc. 144 E. 34th St., N. Y. C.
NICHOLS NASAL SYPHON

When You Subscribe For CLINICAL OSTEOPATHY . . .

. . . Your share of the cost of paper, ink, typesetting, printing, postage, etc., for each copy is so small that it is still within easy reach of depression budgets. A single article may give you an idea which, applied in your practice, will return the investment several times.

Subscription price:

$2.00 a year in the United States
$2.50 in Canada and Abroad

Send check now to

CLINICAL OSTEOPATHY
Published by the California Osteopathic Association
799 Kensington Road
LOS ANGELES

Index to Advertisers — Patronize Them

Books, Literature, Charts

American Osteopathic Association 24, 25, 26, 30
Saunders, W. B. Company....Cover I
Clinical Osteopathy....29
Journal Publishing Co....28
Malone, Dr. E. P....16

Colleges, Training Schools P. G. Courses

College of Osteopathic Physicians and Surgeons....24
Denver Polyclinic and Postgraduate College....Cover II
Kirksville College of Osteopathy and Surgery....Cover III

Foods, Waters and Toilet Preparations

American Can Company....20
Corn Products Refining Co., Karo..12
Davis Co., R. B....7
Horlick's Malted Milk Corp....25
Kalak Water Co....9
Mellin's Food Company....23
Ralston Purina Company....4
S. M. A. Corporation....17
United Fruit Co....11
Vitamin Products Co....Cover IV

Hotels

Waldorf-Astoria, The....13

Instruments, Appliances, Equipment, Surgical Dressings, Supplies

Becton Dickinson & Co....26
Nichols Nasal Syphon, Inc....28
Philo Burt Co....9
Plasmatic-Therapy Co....24
Storm, Katherine L., M.D....19

Miscellaneous

Classified Ads....28

Pharmaceutical and Endocrine Products

Anacin Company....10
Arlington Chemical Company....16
Bischoff Company, Ernst....19
BiSoDol Company....14
Bovinine Company....6
Bristol-Myers Co....18
Ciba Company....19
Harrower Laboratory, Inc....Cover II
Huxley Laboratories....27
National Institute of Nutrition....18
Paul Plessner Co....28
Reed and Carnrick....1
Schering Corp....5
St. Joseph's Laboratories....15
Vapo-Cresolene Co....16
Warner & Co., Wm. R., Argarol....3, 8
Winthrop Chemical Co....14

Professional Ads

Professional Cards....27, 28

Enough Patients!

The doctor who says he does not use educational literature because he has all the practice he can look after is indeed fortunate. He is the man who can well afford to send out large quantities of literature for the good of the cause.

It is the duty of every osteopathic physician to assist in the task of lay education and student recruiting.

The Association's literature is best suited to this purpose.

"A month or so ago, I cancelled my contract order for the February Number of the O.M. A number of my patients have spoken of missing the magazine, and as they most certainly do help practice, I am asking you to send me my regular number of both the February and March Numbers."

J. P. Flynn, Alliance, Ohio.

"The Osteopathic Magazine is getting better and better every month, and I have been proud to send it to my patients."

Marion H. Wilder, Fitchburg, Mass.

"Please enter my order for 200 copies of the Osteopathic Magazine for March. This issue is one of the best I have seen."

L. H. McCartney, Hoxie, Kansas.

"The March O.M. is, by far the most outstanding piece of osteopathic literature it has ever been my privilege to read. It is really a masterpiece from cover to cover."

E. C. Andrews, Ottawa, Illinois.

"I receive the Magazine (O.M.) every month from my osteopathic physician and I cannot praise it too highly. On receiving it, I eagerly open it right away, if time permits, and read it through hungering for more of those splendidly written articles. My admiration for your osteopathic magazine is summed up in the words, 'I want the world to know all about osteopathy, and have everyone realize what a wonderful boon it is to mankind!' "

Mary C. O'Boyle, Ottawa, Canada.

April Osteopathic Magazine

The World Is Better Because He (Dr. Still) Lived.

Our Hidden Enemy. George J. Conley, D.O.
Infantile Paralysis—Its Cause and Treatment.

Are We Stopping Our Doctors? R. C. McCaughan, D.O.
How to live within the physical and mental limits nature has imposed upon us.

Education Moves as a Caravan. John E. Rogers, D.O.
A discussion of osteopathic education.

Why Osteopathy Pays. Ralph H. Williams, D.O.
Industry finds that osteopathic care of employees pays.

What Cure Means. Morris M. Brill, D.O.
Necessity of removing the cause of disease to effect a cure.

Athletes Need Complete Care. James Madison Eaton, D.O.
Osteopathy offers the athlete insurance against possible disabilities later in life.

What Is a Lesion? Ray G. Hulburt, D.O.
The part lesions play in health and disease.

Do Your Children "Stand Up Straight"? Russell M. Wright, D.O.
Parents are responsible for poor posture of children.

Osteopathic Health No. 76

Gravity Is Relentless. Anne L. Wales, D.O.
Emphasizing the necessity of professional guidance in preventing and correcting postural faults.

Stomach Ulcer.
How osteopathy benefits gastric ulcers.

Whooping Cough.
Paroxysms relieved by osteopathic treatment.

Why Osteopathy Is Economical.

The Osteopathic Lesion — An Explanation.
Peter D. Pauls, D.O. Including case reports.

American Osteopathic Association

Samples on Request.

Order Blank on Page 25

14th ANNUAL FREE GRADUATE COURSE

The Kirksville College of Osteopathy and Surgery will conduct the annual Graduate Course

June 1 to 13.

There will be no charge for tuition and the low living costs in Kirksville bring this course within the reach of every osteopathic physician. Designed for the general practitioner, it is a splendid opportunity to learn the new, brush up on the old and gain renewed enthusiasm.

Special features of unusual interest are being arranged and will be announced in the near future.

Plan now to take advantage of this opportunity. Correspondence is invited concerning cases for clinical surgery.

●

KIRKSVILLE COLLEGE *of* OSTEOPATHY *and* SURGERY

KIRKSVILLE, MISSOURI

"CATALYN"

DEFINITE RESULTS

We take pride in the reputation our Vitamin concentrates have earned for getting expected results.

Our Vitamin **A** DOES reduce epithelial irritabilities.

Our Vitamin **B** DOES improve carbohydrate assimilation.

Our Vitamin **C** DOES promote recalcification of bone.

These are the three most important Single Concentrates: and "Catalyn", the complete Vitamin tablet, DOES build resistance, improve muscular efficiency and create stamina and endurance

More information from us, or from the nearest "Catalyn" distributor:

ATLANTA, GA.....724 First National Bank Building
BOSTON, MASS.....35 Bonad Road, Arlington
CHARLESTON, S. C.....177 Wentworth Street
CHICAGO, ILL.....549 West Washington Street
CINCINNATI, O.....421 Provident Bank Bldg.
CLEVELAND, O.....7711 Euclid Avenue
COLUMBUS, O.....1112 E. Fulton Street
DALLAS, TEXAS.....5831 R Prospect
DAYTONA BEACH, FLA.....220 Magnolia Avenue
DENVER, COL.....1727 Logan Street
DES MOINES, IOWA.....3814 FIfth Street
DETROIT, MICH.....528 Penobscot Building
FORT WAYNE, IND.....1204 Maple Avenue
HARRISBURG, PA.....106 Park Terrace
HONOLULU, T. H.....202 Hawaiian Trust Building
HOUSTON, TEXAS.....1120 Jefferson Avenue
JACKSONVILLE, FLA.....232 W. Forsythe Street
KANSAS CITY, MO.....412 W. 47th Street
LOS ANGELES.....438 Chamber of Commerce Building
MEMPHIS, TENN.....6 So. McLean Boulevard
MEXICO CITY.....Grante 1 Apartado 1993
MINNEAPOLIS, MINN.....47 South Ninth Street
MISSOULA, MONT.....311 First National Bank Building
NEW YORK CITY.....25 W. 45th Street
OAKLAND, CAL.....608 16th Street
OKLAHOMA CITY.....417 N. W. 27th Street
PHILADELPHIA, PA.....3603 Baring Street
PHOENIX, ARIZONA.....14 Windsor Avenue
PITTSBURGH, PA.....225 S. St. Clair Street
PORTLAND, MAINE.....46 Beacon Street
PORTLAND, ORE.....Guaranty Building
READING, PA.....207 N. Sixth Street
RICHMOND, VA.....111½ East Broad Street
ROCHESTER, N. Y.....Hotel Cadillac
SAN ANTONIO, TEXAS.....103 W. Ashby Place
SAN DIEGO, CAL.....2945 Madison Avenue
SAN FRANCISCO.....331 Merchants Exchange Building
SEATTLE, WASH.....816 Insurance Building
ST. LOUIS, MO.....4521 Shenandoah Avenue
TOLEDO, O.....2809 Wayne Street
TUCSON, ARIZONA.....P. O. Box 2493
WASHINGTON, D. C.....1791 Park Road, N.W.
WAUKEGAN, ILL.....208 Madison Street
WHEELING, W. VA.....118 N. Eleventh Street
WICHITA, KAS.....116 N. Market Street

VITAMIN PRODUCTS CO., DEPARTMENT 33 CATALYN BUILDING, MILWAUKEE, WIS ®